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ABSTRACT

This report is divided into 11 chapters which describe the various elements of education in Mexico; additional chapters present the physical and social setting and a summary of the authors conclusions. Tables, primarily 1964 figures, and references illustrate and append the text. Highlighted in the discussions are: 1) the closely linked educational, social, and economic goals of the Mexican Revolution, and the shared goals directed toward historically disadvantaged groups through agricultural, Indian, and technical education, cultural missions, and rural schools; 2) the proportion of the federal budget for education in 1966 was 25% as compared to only 5% in 1921; 3) The Eleven-Year Plan, adopted in 1959 and aimed at satisfying the need for elementary education, is moving ahead of schedule; 4) the Federal Government adopted new curriculums for elementary, secondary, and normal schools in 1959 with over 100 million free textbooks and workbooks distributed by 1964; and, 5) 21,815 new classrooms were constructed from 1958-64, including internationally acclaimed semiprefabricated rural ones with furniture, teaching materials, and teacher's quarters. (Author/DJB)

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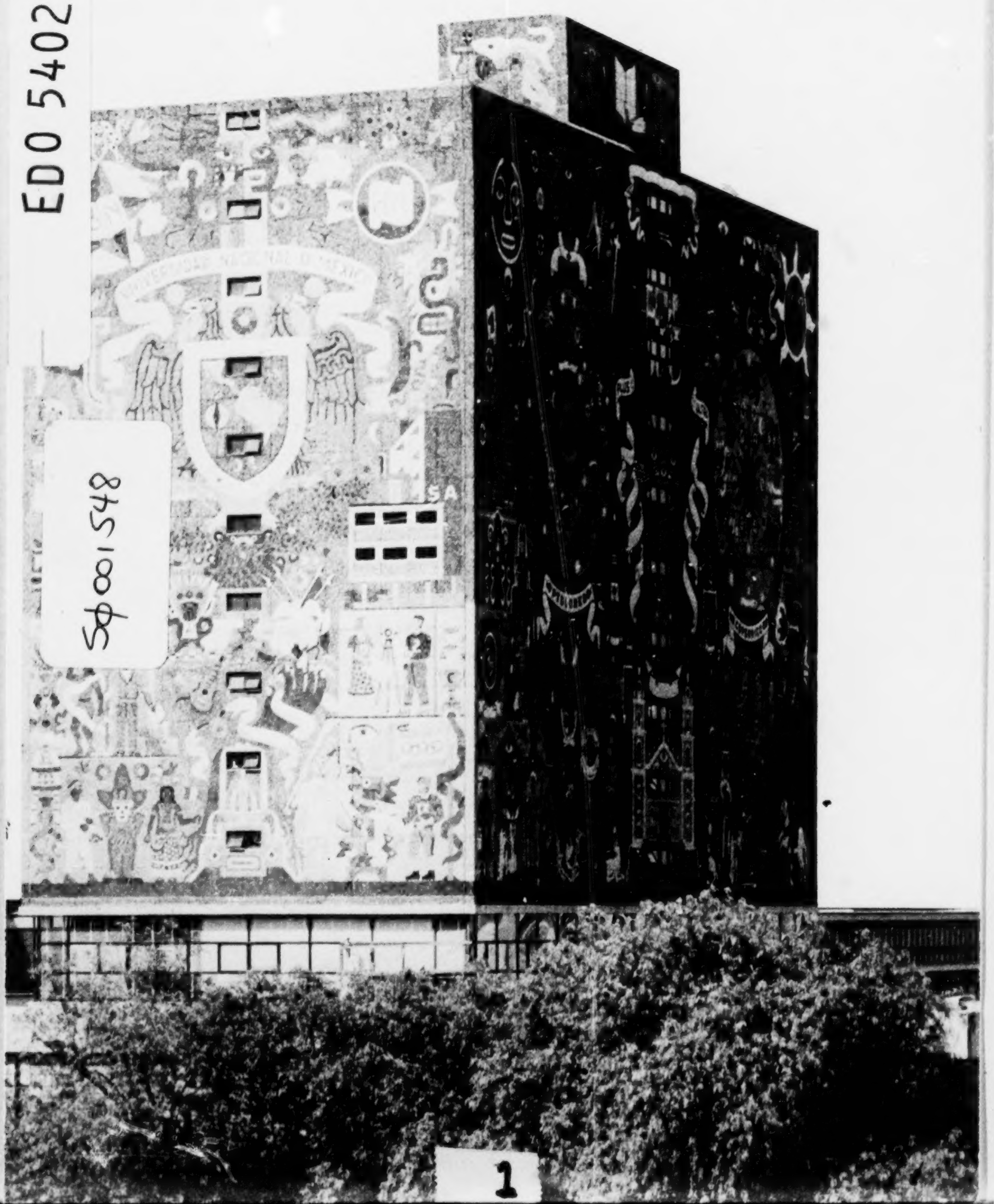

Highlights

- Mexico's educational goals have been closely linked with the social and economic goals of the Mexican Revolution. Agricultural education, cultural missions, Indian education, rural schools, and technical education, directed toward historically disadvantaged groups, all exemplify shared goals.
- The Federal Government is charged with the responsibility of prescribing programs for elementary, secondary, and normal schools and schools for industrial and farm workers.
- In 1921, the Federal budget allocated less than 5 percent of its total budget to education; in 1966, over 25 percent.
- From 1958 to 1964, the Federal Government constructed 21,815 elementary classrooms. Its semiprefabricated rural classrooms, complete with furniture, teaching materials, and teacher's quarters, have won international acclaim.
- The Eleven-Year Plan, adopted in 1959 and operating ahead of schedule, seeks to satisfy by 1970 the country's basic needs for elementary schools.
- The Federal Government in 1959 adopted new curriculums for elementary, secondary, and normal schools. From 1959 to 1964 it distributed more than 100 million free textbooks and workbooks.
- Mexico's largest university (one of the largest in the world) is the National Autonomous University of Mexico, with a total 1964 enrollment in all its schools (including the seven preparatory ones) of 74,000.
- Facilities for higher technical and university education tend to be concentrated in the Federal District, but considerable attention is being directed toward building similar facilities in State and regional areas.

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Education in a Changing MEXICO

by

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Foreword

This report on educational developments in Mexico is one in a series of Office of Education publications on education in foreign countries. It discusses Mexico's educational achievements during the past decade against a background of relevant geographic, historical, political, economic, and social factors. Among the factors considered are the Government's Eleven-Year Plan (1959–70) to expand and improve elementary education throughout the entire country, its widespread literacy program, and its many cultural activities.

The author and the Institute of International Studies wish to express their appreciation to the many agencies, officials, and teachers who provided data for this study or otherwise helped in its development. Special thanks are due to the following persons: Profs. Fernando Palacios and Victor Gallo Martínez, both of the *Instituto Federal de Capacitación del Magisterio;* Dr. John Brown, the Cultural Affairs Officer at the American Embassy in Mexico City; officers and other employees at the American consulates in Guadalajara, Monterrey, and Veracruz; and Mrs. Julia Mellenbruch, teacher of Spanish at the S. F. Austin High School in Austin, Texas.

ROBERT LEESTMA
Associate Commissioner
for International Education

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I.

The Physical and Social Setting

Mexico is on the move. It has emerged from the Revolution of 1910–20 into what economists call a period of "economic boom": industry expands, employment opportunities multiply, and both the amount and the rate of investment increase. Mexican newspaper headlines call attention daily to higher production, more factories, old projects completed, and new ones planned. The boom spirit pervades the large cities such as Mexico City and Monterrey. Despite the unprecedented prosperity, however, a large segment of the Mexican population still lives in poverty.[1]

Mexico's national commitment to educational progress is clearly attested by statistics on increased budgets, enrollments, and facilities; but accomplishment falls short of national needs. After more than a generation of intense and dedicated educational effort, Mexico still has not succeeded in advancing more than half its population beyond the second grade. Plans for the future reveal, however, that the country is undaunted in its determination to continue its pursuit of higher goals for education at all levels.

To appreciate fully the role of education in a changing Mexico, one must examine the background of relevant geographical, historical, political, economic, and social factors.

GEOGRAPHY

Physical Features

From its northern border with the United States, measuring about 1,600 miles, Mexico stretches southward and eastward to share common boundaries of less than half that distance with Guatemala and British Honduras.

Occupying an area of 760,172 square miles, Mexico is the third largest Latin American country. It has eight times the area of the United Kingdom, three times that of Spain, and slightly less than that of the United States east of the Mississippi.

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[1] **Oscar Lewis. *The Children of Sanchez.* For publication details on this and subsequent citations, see Selected Bibliography.**

Mountain chains surround all but the northern side of Mexico. On the western coast lies the Sierra Madre Occidental and on the eastern coast the Sierra Madre Oriental. Between these, a V-shaped plateau rises from near sea level at the northern border to more than 7,000 feet at Mexico City. A third chain, the Sierra Madre del Sur, runs from the Pacific coast through the southern states of Mexico, rising to peaks of 18,000 feet in Oaxaca before it tapers off near the Isthmus of Tehuantepec. Distinct from the three Sierra Madres, but intermingled with them, a volcanic belt of mountains stretches across Mexico at the 19th parallel. Along this belt, which includes the towering peaks of Orizaba (18,696 feet), Popocatepetl (17,883 feet), and Ixtaccihuatl (17,342 feet), earthquakes, tremors, and volcanic eruptions are not unexpected.

Accounting for more than two-thirds of Mexico's arable land area, mountainous terrain has been a formidable barrier to the development of transportation, communication, and agriculture. It has impeded the amalgamation of isolated indigenous groups with the mainstream of national culture; has retarded the development of rural schools, an objective of the National Government since 1920; and has seriously limited the amount of arable land available for the National Government's land-distribution policy. Although for centuries the mountains have been an asset in providing precious minerals and spectacular scenery, they have been a liability in helping to create Mexico's complex agricultural problems and to hold back the development of southern Mexico, the country's most mountainous region.

For the most part Mexico lies in the tropics, but altitude more than latitude determines the climate. The country has four climatic zones, which it identifies as *tierra caliente, tierra templada, tierra fria,* and *tierra helada.* Most of the population gravitates to the *tierra templada,* avoiding the extremes of heat in the Gulf coastal plain and the northern desert, and the extremes of cold in the elevations above 8,000 feet.

A large part of the country has sparse and unpredictable rainfall and nearly half is either desert or near-desert. As Mexico searches for more arable land to feed its rapidly growing population, the tropical coastal areas with their abundant rainfall offer a greater potential to achieve that end than do the arid regions with their costly irrigation.

POPULATION

Mexico's 1960 census showed a population of 34,923,129. According to estimates, in 1965 this figure had increased to more than 40 million, a growth rate of over 3 percent, one of the highest in Latin America. In 1970, the predicted total will be 48 million; in 1975, 57 million; in 1980, 65 million.[2] Population growth has resulted mainly from a rising birth rate and a falling death rate. An increase from immigration has been negligible.

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[2] Banco Nacional de México. *Review of the Economic Situation in Mexico,* XLI: 470:4. January 1965. (The Banco Nacional de México is a private, nongovernment institution. Its Economic Research Department prepares the aforementioned periodical, a monthly appearing in both English and Spanish editions. Its content is based on data made available in Mexico from a variety of sources. The U.S. Office of Education passes no judgment on the figures quoted from that publication in this or subsequent citations.)

The 1960 census showed urban and rural population almost equally balanced, reflecting heavy migration to cities since 1950. The population growth rate was greatest in the States of Baja California Norte, Chihuahua, and Tamaulipas, the Territory of Quintna Roo, and the Federal District.[3] The heavy urban trend is illustrated by the fact that 2 million of the Federal District's 4.8 million inhabitants in 1960 had come from elsewhere in the nation.[4] By 1965 these 4.8 million had increased, according to estimates, to 5.5 million.[5]

The 1960 census listed 16 localities with more than 100,000 population in contrast to 10 of that size in 1950. The populations of the 10 highest among those 16 (the Federal District and nine cities) are listed below:[6]

Population in 1960	*Percent increase 1950–60*	*Locality*	*State*
4,870,876	59.7	Federal District	
736,800	(1)	Guadalajara	Jalisco.
596,939	79.0	Monterrey	Nuevo León.
289,049	36.8	Puebla	Puebla.
262,119	113.0	Juárez	Chihuahua.
209,870	71.1	León	Guanajuato.
179,901	39.5	Torreón	Coahuila.
174,540	170.0	Mexicali	Baja California, Norte.
170,834	19.6	Mérida	Yucatán.
159,980	27.3	San Luis Potosí	San Luis Potosí.

[1] Source did not give a percent.

In 1960 approximately one-third of the Mexican people lived in localities of more than 20,000 population[7]—a considerable increase since 1950. These figures emphasize how urbanization has accelerated, but as Cline points out,[8] the basic pattern of small, scattered, isolated communities is not likely to change rapidly.

A breakdown of the 1960 census by age groups shows the following division of population:[9]

Age	*Percent of population*	*Age*	*Percent of population*
Under 1 year	3.26	40 to 49	7.43
1 to 9	28.49	50 to 59	5.34
10 to 19	22.60	60 to 69	3.32
20 to 29	15.61	70 and over	2.57
30 to 39	11.37		

The fact that 54.35 percent of the population was under 20 years of age illustrates the magnitude of the task of providing educational and welfare services to a large segment of the Mexican society that is essentially dependent and unproductive.

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[3] Howard F. Cline. *Mexico: Revolution to Evolution 1940–60*, pp. 86–87.
[4] Banco Nacional de México. Op. cit., XLI : 470 : 14, January 1965.
[5] Ibid., p. 13.
[6] Ibid., XLI : 477 : 13–14.
[7] Ibid., p. 11.
[8] Cline. Op. cit., p. 101.
[9] Banco Nacional de México. Op. cit., XLI : 470 : 3, January 1965.

In 1960, among the population over the age of 5, numbering 25,968,301, a total of 1,101,955 could speak only an Indian tongue and a total of 1,925,299 could speak both an Indian tongue and Spanish.[10] Thus it appears that linguistic problems have continued to hamper educational efforts to promote literacy and rural development.[11]

MAJOR REGIONS

For convenience, Mexico may be divided into five major regions: the Metropolis, the Core, the West, the North, and the South.[12]

The Metropolis

Coterminous with the present Federal District (an area of about 1,500 square kilometers), the Metropolis embraces Mexico City and 12 large local units called *delegaciones*. Since colonial days Mexico City has been the country's political, economic, and cultural center. No other city in Mexico even begins to compare with it in size or importance. The many new industries in the Federal District have drawn rural workers into its boundaries by the thousands. Although covering only 0.08 percent of the country's area, in 1960 it had over 12 percent of its population and over 25 percent of its production in 46 selected manufacturing lines.[13]

The National Government continues to increase its efforts to decentralize industry away from the large cities and simultaneously to strengthen educational facilities in those areas to which industry is moved.

The Core

Surrounding the Metropolis region, the Core region may be thought of as containing the following States: Guanajuato, Hidalgo, México, Michoacán, Morelos, Puebla, Querétaro, San Luis Potosí, Tlaxcala, and Veracruz. This region has benefited from the National Government's efforts to decentralize industry and from industry's own desire to migrate away from Mexico City's high taxes and crowded living conditions. The amount of migration, however, has not ruined the Core's excellent agricultural lands. It prospers also from having major communications and transportation facilities that link the highlands to the important port of Veracruz (State of Veracruz).

The West

The four States of Colima, Jalisco, Nayarit, and Zacatecas comprise the West region. Within its borders lies Guadalajara (State of Jalisco), Mexico's second largest city. Rapidly becoming modernized and industrialized, Guadalajara serves a productive agricultural and ranching area.

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[10] Secretaría de Industria y Comercio. Dirección General de Estadística. *Compendio Estadístico de los Estados Unidos Mexicanos 1962*, p. 20.

[11] Ibid.

[12] Cline. Op. cit., pp. 49–58.

[13] Banco Nacional de México. Op. cit., XLI : 472 : 7–8, March 1965.

The North

For purposes of the present discussion, the North region embraces Baja California South (a Territory) and the following States: Baja California North, Coahuila, Chihuahua, Durango, Nuevo León, Sinaloa, Sonora, and Tamaulipas. Largely desert, this region has attracted few permanent settlers and its development has been comparatively recent. The North contains over half the nation's land but only about one-fifth of its population; it is characterized by a variety of industries—cattle raising, farming, fishing, manufacturing, and mining. The largest city in the region, Monterrey (State of Nuevo León), is Mexico's third largest.

The South

Indian and rural, mountainous and isolated, the South region covers the States of Campeche, Chiapas, Guerrero, Oaxaca, and Yucatán, and the Territory of Quintana Roo. The only cities of any size within the region's borders are Mérida (State of Yucatán) and Oaxaca (State of Oaxaca). The numerous hamlets of this tropical area each have inhabitants who often speak only their own Indian tongue and who communicate very little with the outside world—even with the inhabitants of the next hamlet. This land is underdeveloped, relatively untouched by industry. By reason of its high rate of illiteracy and its primitive living conditions, the South region, in the opinion of many observers, poses Mexico's greatest educational challenge.

Many Mexicos

Many other divisions of Mexico into regions would be possible. All, however, would reveal the existence of many Mexicos. Any generalization about the whole country would be of value only if it took into account regional or sectional differences.

HISTORICAL SURVEY

The history of Mexico can be divided into four main periods: pre-Conquest (to 1521), Colonial (1521–1810), Independence (1810–1910), and Revolution (1910 to the present). Only a few of the highlights of each period will be mentioned here.

Pre-Conquest Period to 1521

No one knows for certain from where or when man first arrived in the land that is now Mexico. The best evidence suggests that he migrated from Asia, probably more than 25,000 years ago. Although archeological records are incomplete, it is clear that before the arrival of the Spaniards three main groups had left their cultural imprint: the Mayas, the Toltecs, and the Aztecs.

The earliest and most advanced of the aboriginal peoples were the Mayas, who had settled in what is now Guatemala, Honduras, and Yucatán. The Mayan civilization encompassed two epochs of great advance and decline.

The first, the period of the Old Empire, probably reached its height in the seventh century A.D. The second, the period of the New Empire, lasted about 400 years, from the 11th to the 15th century, and then disappeared like the first. The contribution of the Mayan civilization to the New World has been compared to that of the Greeks to Europe in the areas of architecture, the arts, astronomy, mathematics, and writing.

The Toltecs, the next group to rise to a high state of civilization, probably entered the central plateau region from the north in the sixth century A.D. A Nahuan-speaking people, they eventually controlled not only most of the other Nahuan groups but also some cities. The Toltecs borrowed heavily from the Mayans, as evidenced by pyramids to the sun and moon that resembled structures in Yucatán. The Toltecan empire disintegrated in the 13th century as a result of civil war and conquest.

The Aztecs, the third group to achieve dominance, were a Nahuan-speaking people, who migrated to the Valley of Mexico probably in the 12- or 13-hundreds, A.D. In 1325 they established a city (now Mexico City) on an island in Lake Texcoco, calling it Meshico-Tenochtitlán in honor of Mexitli, the god of war, and Tenoch, the guardian priest of the migration.

By alliances and military conquests, the Aztecs extended their control from the Isthmus of Tehuantepec on the south to the Pánuco River on the north. Their culture showed both their own genius for organization and also their extensive borrowings from the Mayan and Toltec cultures. As teachers and scholars, the clergy played a dominant role because of the importance of religion in Aztec culture. When Cortés, the Spanish conqueror, arrived in 1519, he found the Aztec capital, inhabited by about 60,000 families, well fortified and accessible by only three causeways. But he found the rest of the Aztec realm in a spirit of unrest and revolt because of the harsh military and the tribute exacted from conquered tribes. This spirit he skillfully exploited and by 1521 he had completed his conquest.

Most Mexicans today are descendants of the Mayan and Nahuan groups. Several million Mexicans of pure Indian blood still speak the languages of their respective ancestors and live much as did their ancestors. After more than 400 years, the Indian heritage still pervades Mexico's national culture. To speak of Mexico only as a "Latin" nation is to ignore the impact of several thousand years of Indian history.

Colonial Period: 1521–1810

For almost three centuries the new territory, known as New Spain, was governed by Spanish viceroys sent by the King of Spain to be his representatives. A comprehensive and complicated system of government was established, and the Spaniards pushed their frontiers northward and westward. They encouraged christianizing of the Indians, imposed a new European technology, introduced new crops, and generally made their influence felt in language, religion, education, and the arts. A feudal society emerged with well-defined classes, of which the Indian comprised the lowest.

After a period of growth and expansion, New Spain entered an era of decline, evident in education as well as in the economy. New Spain's decline coincided with that of the mother country's power in Europe, as control of the seas passed to England following the defeat of the Spanish Armada.

Spain had left her indelible cultural imprint on Mexico but in no way had she prepared that former colony for self-government.

Independence Period: 1810–1910

The move for Mexico's independence began in 1810 and finally ended in 1821, after a bitter struggle which left the country economically disorganized and politically unstable. Mexico started its independent existence as an empire under the control of the Emperor Iturbide, but in 1824 it became a federal republic. For over 30 years, a struggle between conservative and liberal groups created such a turbulence in Mexican politics that one leader, Santa Anna, was in and out of power several times. Meanwhile, Mexico lost more than one-third of its territory to the United States during the Mexican War of 1846–48.

In 1857 the liberals under President Juárez gained control and wrote a constitution initiating separation of church and state and various other reforms later incorporated into the Constitution of 1917. The adoption of the 1857 Constitution provoked widespread domestic opposition, which led to international strife when England, Spain, and France sent an expedition to Mexico to collect debts owed them. England and Spain withdrew, but France took advantage of the civil discontent in Mexico to reestablish a colonial empire. It placed Maximilian on the throne, but the empire lasted only until 1867, when he was executed. Juárez then returned as President. He died in 1872, before he could implement the reforms of the Constitution of 1857.

From 1876 to 1911 (except for the interruption of two other administrations totaling 5 years) Porfirio Díaz was virtual dictator of Mexico. Concentrating on economic development and political stability, Díaz encouraged foreign investment, developed transportation, promoted production of exportable minerals and agricultural products, stabilized credit and currency, and in other ways achieved a high level of material progress for a privileged few. To the world, Mexico presented an image of "peace, order, and progress" (the motto of the Díaz regime). Smoldering below the surface were longstanding grievances of the vast majority of the populace, whose lot had not improved. The stage was set for a violent revolution.

Revolution Period: 1910 to the Present

The military phase of the Revolution began on November 20, 1910, with a mass uprising against the Díaz regime. After a turbulent period marked by violence and bloodshed, the social and economic objectives took shape and were translated into the 1917 Constitution. One of the most far-reaching of all modern social documents, this Constitution contains drastic provisions against the church, foreign intervention, and wealthy landholders. It sought to bring social justice to *los de abajo* (the downtrodden ones), but since this objective could not be achieved overnight, the social and economic phase of the Revolution became a continuing process which each administration has sought to implement.

To endorse and support the Revolution in Mexico, as each administration of that country has done since 1920, is considered no more radical in that country than to endorse and support democracy and freedom is considered in the United States. The Mexican Revolution demands accelerated social change, but not violent overthrow of established government.

Each administration since 1917 has moved to implement the goals of the Constitution in its own fashion. The Obregón administration (1920–24) established the Federal Secretariat of Education in 1921 and began a massive rural education program. The Calles administration (1924–28) expanded this program, gave organized labor greater recognition, advanced land reform, and became embroiled in a bitter church-state conflict. In the Cárdenas regime (1934–40) the Revolution moved ahead vigorously on all fronts: land distribution increased rapidly, foreign oil holdings were expropriated, railways were nationalized, rural school construction was accelerated, and the church-state conflict was intensified.

Since 1940 the pace of the Revolution has moderated. Avila Camacho (1940–46) sought to bring peace and harmony among dissident groups as national unity became the overriding objective during World War II. President Alemán (1946–52) gave special impetus to the development of communication, industrialization, and transportation. Succeeding administrations have all helped to consolidate and extend previous gains. Although all Presidents after Alemán also have demonstrated considerable restraint and moderation, they have each endorsed the Revolution's precepts.

Mexico's successful management of the Olympic games in October 1968 provided a unique opportunity to dramatize to a worldwide audience Mexico's progress, which Government leaders frequently state began with the Revolution of 1910.

THE GOVERNMENT

Mexico is a Federal republic of 29 States, two Territories, and a Federal District. Of the three branches of government—executive, legislative, judicial—the executive is clearly dominant.

The President is elected by direct popular vote for 6 years and may not succeed himself. The Constitution makes no provision for a vice-presidency but empowers the Congress to determine presidential succession in case of vacancy.

The Congress is composed of a Senate of 60 Senators, two from each State and the Federal District, elected for 6 years; and a Chamber of Deputies of 162 members elected, on the basis of population, for 3 years.

Judicial power resides in a Supreme Court of 21 members appointed for life, who in turn appoint the judges of lower Federal courts for limited terms.

The classical system of checks and balances envisioned by the framers of the United States Constitution finds only theoretical acceptance in the Mexican system. The executive branch overshadows the judicial and legislative branches at the national level and exercises far greater control over State governments than does the Federal Government in the United States.

The political strength of the President derives both from powers bestowed on him as constitutional head of state and from his position as head of the official party, known since 1945 as PRI (*Partido Revolucionario Institucional*—Institutional Revolutionary Party). From 1929 to 1937, it was known as PRM (*Partido de la Revolución Mexicana*—Party of the Mexican Revolution). Since its founding in 1929 the official party has had remarkable success winning elections for Presidents, Governors, and Senators, with a clear majority of the votes. This extraordinary political achievement obviously enhances the power of the President in his dual capacities. Critics of the system complain that it is a party dictatorship; supporters assert that it is "guided democracy." Despite disagreement about the extent of democracy in Mexican Government, the general consensus in the country is that a strong executive and a single party have brought about a political stability that is rare not only in the history of Mexico but also in the history of Latin America.

ECONOMIC DEVELOPMENT

Economically Active Population

According to the 1960 census, 32.5 percent of the total Mexican population was economically active,[14] numbering 11,253,297 persons over 12 years of age.[15] Of this number, agricultural workers constituted 64 percent, and about 40 percent of them earned less than 50 pesos ($40) a month, an amount that relegates them to the poverty level.[16]

Exports and Imports

Mexico exports mainly agricultural products—coffee, cotton, henequen, and sugar—and imports mainly equipment and machinery. In 1964, 20 percent of the imports were consumer goods and 80 percent production goods.[17] The United States is the chief market for exports and the chief supplier of imports. Mexico's massive industrialization needs have resulted in an excess of imports over exports and a growing foreign debt. To reduce its trade deficit, the country is trying to increase the export of manufactured goods.

Growth of the Economy

Mexico's economic advances in recent years are readily documented. Concerning the GNP (Gross National Product), for example, the October 1968 issue of *World Business* stated the following:

> Between 1960 and 1967, real GNP expanded at an average annual rate of 6.2%, while prices rose only 2.4% per year. This economic feat is rapidly lifting Mexico out of the ranks of the less developed nations.[18]

The same source cites figures to show an even more favorable economic situation in 1968.[19] Exports of manufactured goods in the first 5 months of that year rose 17 percent over the level of the comparable 1967 period. The predicted GNP growth rate was expected to reach 7.5 percent for 1968 as compared with 6.4 percent for 1967, partly because of expanded investment by both public and private sectors. The second half of 1968 was expected to show a very strong economic advance owing to the impact of the Olympic games.

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[14] Secretaría de Industria y Comercio. Op. cit., pp. 23–24.
[15] Ibid., p. 22.
[16] Banco Nacional de México. Op. cit., XLI : 472 : 7, March 1965.
[17] Ibid., XL : 469 : 24, December 1964.
[18] Chase Manhattan Bank of North America. *World Business*. October 1968, p. 19.
[19] Ibid., pp. 19–20.

Mexico's economic advance has been achieved without the ravages of inflation, a reaction hampering the development of such other South American countries as Brazil and Chile. The peso has maintained the same ratio of 12½ to the dollar since 1954. This stability, coupled with sound development, has attracted the favorable attention of non-Mexican financial institutions. One such institution is the Chase Manhattan Bank of North America:

> Mexico is economically the strongest nation of Latin America. A favorable climate for investment has recently been developed for foreign capital. There exists a true source of potential wealth.[20]

Industrialization in Mexico is solidly based. Begun in earnest during World War II, it has been fostered by a curious blend of public and private investment. Communications, heavy industry, irrigation, power, and roads have all received attention. Political and economic stability, a sound currency, and strong international credit provide the ingredients for continued growth.

Uneven Development

Statistics on national growth obscure the uneven character of the economic advance—brisk in some sectors of the economy and some regions, and sluggish in others.[21] Myers' study of Mexican education and national development points out that most expansion has occurred in the Central Plateau States and those along the U.S. border; the least, in the States facing south on the Pacific coast.[22] The less advanced regions show a greater percent of their labor force employed in agriculture, a generally low level of agricultural technology and productivity, and little urbanization and industrialization.[23] They also rank low in literacy and educational attainment.[24] Myers further contends that the greatest economic advance has occurred in those States which were already most advanced, thus creating even greater contrasts than before.[25] The great gap between the new and the old agriculture is illustrated by the fact (pointed out by Oscar Lewis) that 20 percent of Mexico's cultivated land is still worked by the pre-Hispanic method of cutting and burning and less than 1 percent by tractors.[26]

Persistent Economic Problems

Despite progress and stability, persistent economic problems remain unsolved. The foremost problem concerns agriculture. Over half of the economically active population is engaged in agriculture, which in 1967 accounted for only approximately one-sixth of the GNP. Average annual per capita income for agricultural workers is about 40 percent lower than for industrial workers. Despite marked urban migration in recent years, 19 of the 32 States and Territories still have a predominantly rural population. Much of Mexican agriculture continues to be plagued by unemployment and underemployment and many workers try to eke out an existence from 4 to 5 months of agricultural work per year, with primitive tools and techniques.

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[20] This statement appeared in *Review of the Economic Situation in Mexico*, XL : 458 : 7, January 1964.

[21] Charles Nash Myers. *Education and National Development in Mexico*.

[22] Ibid., p. 12.

[23] Ibid., pp. 13–22.

[24] Ibid., p. 24.

[25] Ibid., p. 22.

[26] Oscar Lewis. *Five Families*, p. 9.

Land Reform

A prime objective of the Mexican Revolution was land reform. The victorious forces demanded a breakup of the hacienda system, which concentrated land ownership in the hands of a small oligarchy and trapped the vast majority of peasants in a feudal caste system. From 1915 to 1965, the Government distributed over 120 million acres, or more than half of the country's productive land.[27] President Díaz' annual report of September 1, 1967, stated that his administration in its first 3 years had distributed a total of 8,470,366 hectares (1 hectare=2.47 acres).

One system of land distribution involves the *ejido,* an agricultural community which holds land in common, either to be cultivated collectively or distributed and cultivated individually. *Ejido* lands cannot be sold or mortgaged. In 1965 there were about 18,000 *ejidos,* averaging about 16 acres.

Land is also distributed through the *pequẽnas propiedades* (small properties), which resemble a U.S. family-size farm and are composed of lands exempt from expropriation. In 1965 there were approximately 40,000 of these, averaging 250 to 600 acres. In addition, there were over a million private holdings of smaller size and more than 500 haciendas of 125,000 to 250,000 acres each.

Land distribution, having reached its zenith in the Cárdenas administration (1934–40), slackened in succeeding administrations, not because of lack of commitment to this Revolutionary policy, but because of lack of suitable land for distribution. Economic planners know that land distribution alone will not solve Mexico's agricultural problems. Efficiency in the use of available land must increase through greater investment of capital and through more extensive application of fertilizers, insecticides, machinery, and scientific techniques. In improving agricultural technology, education is expected to play a key role.

Though Mexico's middle class is growing, wide disparity in the distribution of earnings remains. The challenge for the future is succinctly stated in the publication *Review of the Economic Situation of Mexico:*[28]

> By 1970 Mexico will have 48.3 million inhabitants; by 1980, 70 million (estimates). Jobs by the hundreds of thousands must be created annually; the nation's wealth must be more equitably distributed and not remain in the hands of a few families in a supposedly democratic and free society. The average

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[27] Data on land distribution from *The Latin American Times* (special supplement on Mexico) of October 12, 1965, pp. 5–10.

[28] Banco Nacional de México. Op. cit., XLI : 472 : 7, March 1965.

(mean) annual individual income here is about 5,000 *pesos,* but most people earn less. It is easy to talk of redistribution of income, but the higher paying jobs go to well-educated persons; so education is basic for democracy.

SOCIAL PROBLEMS

The Indian in Mexico

Although Mexico is predominantly *mestizo,*[29] a large segment of the population clings to its aboriginal culture and language. Cline refers to "the elusive Indian," [30] pointing out that the Indian in Mexico is becoming more difficult to find and define. Use of the Indian language as a principal means of communication is usually considered a reliable criterion for identifying the individual as an Indian. The 1960 census revealed 1,104,955 who spoke only an Indian language and 1,925,299 who spoke an Indian language and Spanish. These two groups constituted less than 10 percent of the total Mexican population in 1960. The Indian problem does not arise from language or racial differences, but rather from the fact that the Indian tends to live in isolated, primitive, unhygienic, impoverished circumstances. He is a marginal economic and social being without any feeling of national belonging. Mexican leaders realize that the Indian problem will not be solved by teaching him the Spanish language, important as this may be, but by integrating him into the stream of national culture and lifting him out of poverty.

Illiteracy

Massive literacy campaigns and extended educational opportunities have begun to lower the illiteracy rate. According to the 1960 census, 10,573,163 (over 37 percent) of the total population of 27,987,838 above age 6 were illiterate.[31] In many States such as Chiapas, Guerrero, Hidalgo, Oaxaca, and Querétaro, the illiteracy rate ran well above 50 percent.[32] The average number of years of school attendance was approximately two,[33] hardly sufficient to prevent frequent lapses into functional illiteracy among those whose basic learning has not been reinforced through further schooling or active use.

Urban Problems

Growing cities present an atmosphere of dynamism, modernism, and progress, but they also engender new critical problems. Mass migration from rural to urban areas produces newcomers needing immediate homes, jobs, transportation, and medical, educational, and welfare services. Because of these demands, city services may break down, slums spring up like the belt of poverty surrounding the Federal District, and housing conditions worsen.

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[29] **A *mestizo* is a person having part-Indian and part-Spanish blood.**
[30] **Cline. Op. cit., pp. 91–101.**
[31] **Secretaría de Industria y Comercio. Op. cit., p. 20.**
[32] **Ibid., pp. 20–21.**
[33] **Banco Nacional de México. Op. cit. XLI : 470 : 4, January 1965.**

Providing educational services to a concentrated population may be easier and more economical than diffusing these services, but only if the services are carefully planned and organized. Urban problems in Mexico challenge not only education, but all organized social institutions.

Student Unrest in 1968

One of the most serious problems confronting Mexico in 1968 was student unrest marked by bursts of violence, threatening even to interrupt the Olympic games. From the end of July for several months, most Federal District institutions of higher education (including their preparatory schools) went on strike. Student protests broke out also in the Provincial universities. At one time, troops were called out to occupy the grounds of the National Autonomous University of Mexico and other institutions in Mexico City.

Students demanded that the Government reaffirm university autonomy, suppress riot police, remove top police officials, release arrested students, pay indemnities for those injured or killed in the rioting, and repeal the Constitution's antisubversion clauses. Long-range, less well defined demands were for a greater voice of youth in government, a reassessment of national goals, and social and economic reforms.

Legislators have called for a comprehensive study of youth problems and a complete reform of the educational system. The student activities described above represent one of the most serious challenges facing the Government of Mexico since the days of the Mexican Revolution.

II.

Educational History

PRE-CONQUEST PERIOD

The roots of Mexico's educational system reach back to the pre-Conquest period. Not much is known about education in the Mayan culture (probably the most advanced in the New World) because it was in a state of decline when the Spaniards arrived. Much more is known about education under the Aztecs since their system is described in the *Codice Mendocino,* a collection of hieroglyphics now housed in the National Museum. Like other aspects of Aztec life, both home and public education had a religious-military character.

Home Education

Until age 15, the sons in the family were taught by the fathers, the daughters by the mothers, according to a rigid system which prescribed tasks for each age level and severe punishment for failure to meet accepted standards of conduct. At age 7, the boy began to learn his father's trade and the girl, spinning. Moral education taught love and respect for parents, devotion to duty, hatred for vice, lying, and idleness, and reason and justice as a basis for actions.[1] The system was rigorous and even harsh, but no more so than the life for which it aimed to prepare the young.

Public Education

At the age of 15, boys and girls were assigned to a State school. The boys of the nobility entered the *Calmecac* and studied for the priesthood. The *Calmecac* is defined as a "school of the will to control appetites, to conquer pain and fatigue, and to build strong souls and bodies." Here boys learned sacred chants, elements of history and geography, hieroglyphic reading and writing, and counting with the vigesimal system. They learned to speak with correct rhetoric and urbanity, to make astronomical observations, and to interpret the calendar. Every 5 years, pupils were promoted, according to their merits, to the various levels of the priesthood.

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[1] **Paula Alegría. *La Educación en México antes y después de la Conquista.* For publication details on this and subsequent citations, see Selected Bibliography.**

Boys from the middle classes went to the *Telpuchcalli* to become warriors. The curriculum was similar to that of the *Calmecac,* but the discipline was even more Spartan.

Girls also attended *Calmecac* and *Telpuchcalli* schools. The *Calmecac* for girls was not supported by the state but by the work of the students and their parents or other relatives. The *Calmecac* prepared girls for service in the temple. Because intellectual training of girls was not considered important for the Aztec gods, the curriculum emphasized domestic and religious studies. In the *Calmecac* the girls led a life of hard work and abstinence. In the *Telpuchcalli* they learned domestic chores, singing, and dancing.

No formal education was provided for the children of slaves and serfs, the majority of the population. Thus education reinforced the caste system.

COLONIAL PERIOD

Education as a Church Responsibility

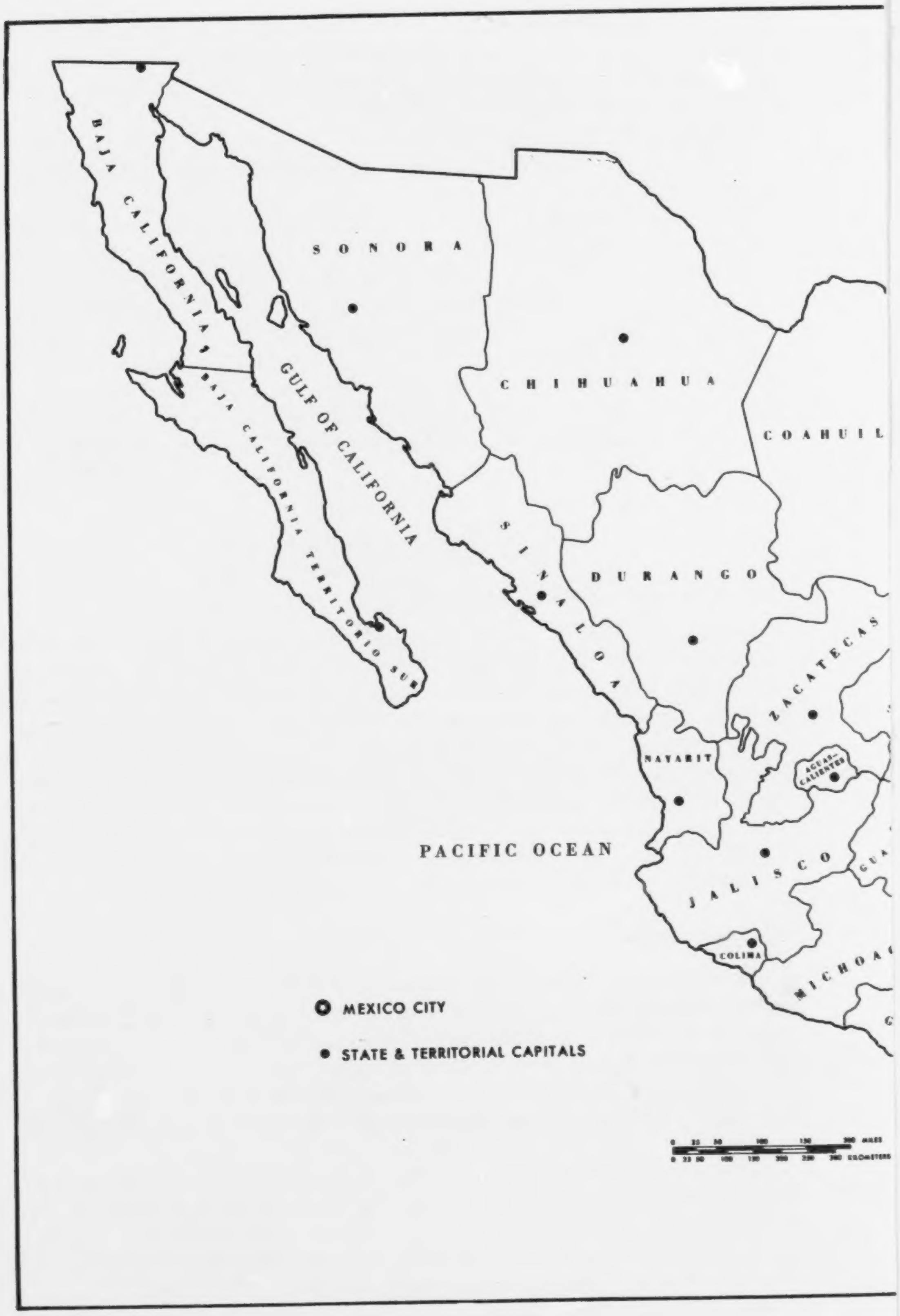
During the colonial period, education was largely in the hands of the church. Transplanting foreign culture and religion from the Old World to the New World was an undertaking of far greater complexity than the undertaking of military conquest. The Spanish Government did not assume much responsibility for education in the colonial world, probably because education was not then generally considered a State function. Nevertheless, state and church operated with such unanimity in the colonial period that one must assume the Government approved the church's educational efforts. Schools, like other social institutions, were well suited to the feudalistic system that characterized three centuries of Spanish rule.

Monastic Orders

From the early days of the Conquest, the religious orders were active in establishing schools. The Franciscans, the first to begin converting the Indians, specialized in elementary schools and schools of arts and crafts; the Augustinians and Jesuits, in secondary schools. As part of their evangelizing efforts, all the monastic orders built churches, convents, and hospitals. Many churches had a school alongside, but education was always ancillary to religion.

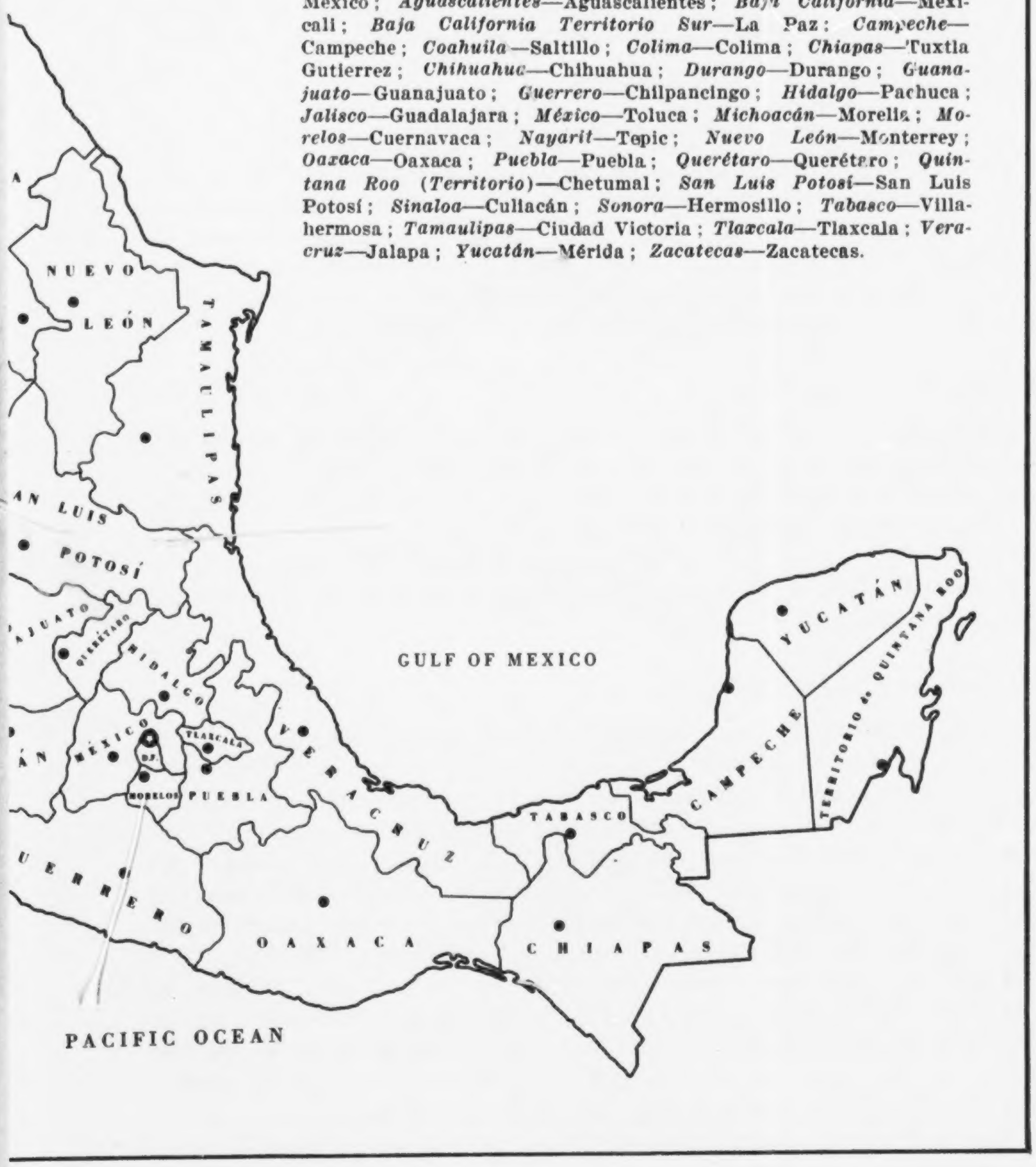
Although colonial education had severe limitations, there were also some solid achievements. Pedro de Gante, a Franciscan friar, as early as 1523 established the first elementary school in Texcoco (in the State of Mexico), and another in the Capital in 1525. Indians were taught not only the Christian doctrine, but singing, painting, and many different trades.

Another Franciscan, Bishop Zumárraga, established the first school for Indian girls in Texcoco and advocated similar schools for all principal cities. Vasco de Quiroga founded hospitals and schools in several localities


BAJA CALIFORNIA
SONORA
CHIHUAHUA
COAHUIL
GULF OF CALIFORNIA
BAJA CALIFORNIA TERRITORIO SUR
SINALOA
DURANGO
ZACATECAS
NAYARIT
AGUAS-CALIENTES
PACIFIC OCEAN
JALISCO
GUA
COLIMA
MICHOAC
G
MEXICO CITY
STATE & TERRITORIAL CAPITALS

MEXICO
STATES AND TERRITORIES

STATE AND TERRITORIAL CAPITALS: *Distrito Federal*—México; *Aguascalientes*—Aguascalientes; *Baja California*—Mexicali; *Baja California Territorio Sur*—La Paz; *Campeche*—Campeche; *Coahuila*—Saltillo; *Colima*—Colima; *Chiapas*—Tuxtla Gutierrez; *Chihuahua*—Chihuahua; *Durango*—Durango; *Guanajuato*—Guanajuato; *Guerrero*—Chilpancingo; *Hidalgo*—Pachuca; *Jalisco*—Guadalajara; *México*—Toluca; *Michoacán*—Morelia; *Morelos*—Cuernavaca; *Nayarit*—Tepic; *Nuevo León*—Monterrey; *Oaxaca*—Oaxaca; *Puebla*—Puebla; *Querétaro*—Querétaro; *Quintana Roo (Territorio)*—Chetumal; *San Luis Potosí*—San Luis Potosí; *Sinaloa*—Culiacán; *Sonora*—Hermosillo; *Tabasco*—Villahermosa; *Tamaulipas*—Ciudad Victoria; *Tlaxcala*—Tlaxcala; *Veracruz*—Jalapa; *Yucatán*—Mérida; *Zacatecas*—Zacatecas.


NUEVO
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MORELOS
PUEBLA
ÁN
VERACRUZ
UERRERO
OAXACA
CHIAPAS
TABASCO
CAMPECHE
YUCATÁN
TERRITORIO de QUINTANA ROO
GULF OF MEXICO
PACIFIC OCEAN

and is credited with initiating the first practical system of rural education. He also helped to establish institutions for *mestizo* children, both boys and girls.

Higher Education

Founded by royal decree of Charles V in 1551 and inaugurated in 1553, the Royal Pontifical University of Mexico was patterned after the University of Salamanca in Spain. It offered seven branches of study: arts, canons, the *Decreto,* law, rhetoric, sacred writing, and theology. Medicine and the study of the Nahuatl and Otomi languages were added later. By 1775, the university had conferred 30,000 bachelor's degrees and 1,162 doctorates.[2]

The Jesuits

At the secondary level, the contributions of the Jesuits were particularly noteworthy. They started a humanizing and modernizing trend in colonial education by the introduction of classical and scientific studies, theatrical performances, and their famous method, the *ratio studiorum.* From their arrival in 1572 until their expulsion in 1767, the Jesuits elevated the standards of education and exerted a profound influence on its structure. They left behind 25 schools as tangible evidence of their contribution.

Secular Institutions

The trend toward lay education and away from traditional and confessional education began toward the end of the colonial period, when three institutions were founded independent of the clergy. These schools were *El Colegio de las Viscainas* (1767) for girls, *La Academia de los Nobles Artes de San Carlos* (1783), and *Escuela de Minas* (1792). But even in the institutions created and supported by the clergy, intellectual independence began to assert itself.

Educational Conditions in 1810

By the middle of the 18th century, the secular clergy became dominant. Educational decline followed. The expulsion of the Jesuits in 1767 was a setback for secondary and higher education. Primary education, in which the early friars had made such heroic advances, had practically ceased by 1794—only 10 elementary schools were then in existence.[3] Education for Indians and *mestizos,* never widespread, seldom reached beyond the catechism and the rudiments of learning. At the end of the colonial period, it was estimated that only 30,000 out of a total population of 6 million were literate.[4]

Secondary and higher education had been the exclusive privilege of the higher classes, since it was feared that educational opportunities for the lower classes would endanger the stability of the social hierarchy. By thus educating the higher classes and neglecting the education of the masses, colonial schools had increased class cleavages and had helped to perpetuate a theocratic state in which power was shared by civil, military, and religious

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[2] Francisco Larroyo. "La Educación" in *México y la Cultura,* pp. 597–598.
[3] Ibid., p. 598.
[4] Raúl Mejía Zúñiga. *Raices Educativas de la Reforma,* p. 25.

groups. Colonial education failed to prepare the masses for independence and for life in a democratic society. And educational conditions still prevailing in 1810 help to explain the stormy postindependence period. In 1968 Mexico found herself still struggling to overcome the educational backlog of several centuries.

INDEPENDENCE PERIOD TO 1910

Divided Responsibility

The political instability of the early independence period provided an unfavorable climate for educational growth. Despite a long tradition of centralist rule, Mexico began life as a republic when it adopted its 1824 Constitution. The States, having control over education within their boundaries, devised elaborate educational plans only to have them discarded because of political upheavals or depleted treasuries. Much of the responsibility for education fell to the municipalities. The Federal Government administered education in the Federal District and Territories. Because the educational provisions of both the Federal and State Constitutions were not implemented, education often retained the colonial pattern of church domination.

Challenge to Church Control

In 1834, when the Liberals under President Gómez Farías came to power, he issued a decree to secularize all missions and confiscate their properties. He suppressed the Royal and Pontifical University, founded two normal schools, began night schools for adults, and declared that education should be free and that anyone could legally open a school. When the Centralists came to power the next year, these reforms were abandoned, but it was clear that if and when the Liberals returned to power, another attempt would be made to wrest educational control from the clergy.

The Lancasterian Schools

One type of school durable enough to survive political turmoil was the Lancasterian school. Devised by two Englishmen, Bell and Lancaster, the Lancasterian system was first used in Mexico in 1822, remaining dominant until 1890. Under this system, the teacher organized his classes around the ablest pupils, who as monitors passed on, to small groups of pupils in their charge, the instruction they had received from the teacher. A scale of prizes and severe penalties promoted discipline and motivation. In short, the Lancasterian system provided economical mass instruction with a minimum of trained teachers.

Secular Trends

When Juárez and the Liberals returned to power in 1855, the 1857 Constitution was adopted and rigid reform laws were passed which required not only separation of church and state, but also confiscation of all church property not used for worship. With the end of French intervention and the death of Emperor Maximilian in 1867, Juárez again implemented the modern principle that public education should be compulsory, free, and secular, but he died in 1872 before his reforms could get well under way.

Progress Under Díaz

Coming to power in 1876 and interrupted twice (by the 1- and 4-year administrations of Méndez and González, respectively), the Porfirio Díaz administration in general brought peace and stability to Mexico for nearly 35 years. Advances occurred primarily in industry and social betterment and only secondarily, however, in education. Nevertheless, the Federal Government increased its educational activity in the Federal District and the Territories and tried to guide and stimulate the States to follow its example, while the States intervened increasingly in municipal affairs in order to equalize educational opportunities and to insure enforcement of State laws. Although the administration did not enforce reform laws against the church, the percent of schools supported by the Government increased.

Reforms in curriculum and methods resulted from the establishment of the first Model School of Orizaba (State of Veracruz) in 1882 and the contributions of two outstanding European-born educators, Enrique Laubascher and Enrique Rébsamen. Kindergartens were established in 1904. The National University, closed by Maximilian, was reorganized and reopened in 1910. An office of full Cabinet status was created in 1905 to handle national educational affairs. Its first Secretary, Justo Sierra, made great strides toward uniformity in the schools and greater recognition of their social function. To relieve the teacher shortage two normal schools were established—one for men in 1887 and the other for women in 1890.

The 1910 statistics on educational conditions show numerous discrepancies, but the following facts may be gleaned from them:

1. More than two-thirds of the total 1910 population of 15,139,855 could neither read nor write.
2. Fewer than one-fourth of the school-age population were enrolled in school.
3. School conditions in the Federal District were far superior to those in the States and Territories.
4. Education in the rural areas (where over two-thirds of the population lived) was almost completely neglected

The Porfirio Díaz regime, ending in 1911, had brought Mexico substantial industrial progress and treasury surpluses, but education still lagged, especially in rural areas, already stirring with the spirit of revolt.

ERA OF SOCIALIST EDUCATION:
1910–40

Phases of the Revolution

Originally, the Revolution of 1910 was motivated by vaguely defined goals of a social democracy that would spread culture among all social classes.[5] Later came the agrarian phase of the revolt, a violent movement to break up the *latifundio* (large landed estates) system. A third phase, almost parallel to the second, was the proletarian revolt.

Basic Schools

The Revolutionary movement's first educational effort was to create a system of rural schools. The *escuelas rudimentarias* (basic schools), begun in 1911, were independent of the primary schools and were intended mainly for the Indian population. Devoting their efforts to teaching reading, writing, and arithmetic, the *escuelas rudimentarias* did not achieve the results they hoped for because their curriculum was not sufficiently relevant to the daily problems of rural living. Later rural schools were more practical and utilitarian. The *escuelas rudimentarias* did, however, represent a significant policy change: (1) The Federal Government assumed some responsibility for education outside the Federal District and the Territories; (2) it was making a gesture toward education of the Indians, formerly neglected by all government levels.

Constitution of 1917

After the period of violence from 1913 to 1916, the Constitution of 1917 gave legal expression to the goals of the Revolution. This Constitution far exceeded the one of 1857 in granting powers to the Federal Government to regulate communications, labor, land, natural resources, and other aspects of the national economy. In education, however, the 1917 Constitution did not disturb the principle of divided sovereignty between the Federal Government and the States.

Article 3 of the 1917 Constitution's many provisions for education is the most important since it declares that—

1. Instruction shall be free.
2. All instruction in public institutions of learning shall be secular.
3. No religious corporation or minister of any religious creed shall establish or direct schools of primary instruction.
4. Private primary schools may only be established subject to official supervision.

Other articles provide for compulsory school attendance of children under age 15 and for school maintenance by agricultural, industrial, and mining enterprises. Restrictions on the church in educational and other matters exceed those of any previous legislation.

In 1921 two revisions of the Constitution opened the door for extensive Federal participation and control in education. One revision authorized the Federal Government to "establish, organize, and support in all the Republic" elementary and rural schools; the other authorized it to establish the Federal Secretariat of Public Education, with full Cabinet status, to promote the organizing and functioning of education throughout the nation.

Educational Movements

The Federal educational movement began in 1921, when José Vasconcelos, eminent lawyer, philosopher, and writer, was appointed Secretary of the

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[8] Larroyo. Op. cit., p. 618.

new Secretariat of Public Education. By 1924 the Government had established more than 1,000 rural schools, had opened popular libraries, and widely distributed agricultural, classical, and manual training books. Fine arts and physical culture were encouraged. Federal funds augmented State educational systems. Political planners, recognizing that schools, as the ideological arm of the Revolution, could achieve their social objectives, awakened the nation to its need for more schools.

Under the Calles administration (1924–28) the number of rural schools more than tripled. The Government instituted cultural missions (teams of specialists conducting inservice institutes for rural teachers), created new regional normal and agricultural schools, and expanded secondary education. With the guidance of able educational leaders, Mexico was implementing a progressive educational philosophy that has won wide acclaim, including that of the American educator, John Dewey.

The Six-Year Plan

During the Cárdenas administration (1934–40), educational objectives became closely interwoven with the social and economic objectives of the Six-Year Plan, the most far-reaching effort to implement the 1917 Constitution. Article 3 of that Constitution was revised in 1934 to read in part:

> The education imparted by the state shall be a socialistic one and, in addition to excluding all religious doctrine, shall combat fanaticism and prejudices by organizing its instruction and activities in a way that shall permit the creation in youth of an exact and rational concept of the Universe and of social life.

The constitutional directive that education was to be "socialistic" provoked controversy and intensified the church-state conflict, and this intensified conflict in turn hampered efforts to attain the goals of the Six-Year Plan.

The achievements of the Cárdenas administration in education were nevertheless impressive, as shown by the increase in the number of schools under the Secretariat of Public Education from 1934 to 1940: [6]

Type	*Number*	
	1934	*1940*
Total	*10,629*	*14,818*
Kindergarten	248	([1])
Elementary	10,276	14,384
Secondary	61	184
Technical	33	96
Regional agricultural	11	32
Workers'	0	102
Elementary agricultural	0	20

[1] Transferred in 1968 to the control of the Secretary of Public Welfare.

Particularly noteworthy among the increases are those in elementary (mostly rural) schools and in schools for agricultural and other workers. With an expanded budget Federal control and participation became greater, but the Government made an effort to set minimum contributions from States and municipalities.

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[6] **Clark C. Gill. *The Role of the Federal Government in Public Education in Mexico*, p. 108.**

NATIONAL UNITY: SINCE 1940

New Objectives

Avila Camacho's administration (1940–46) ushered in a new period of national unity in education which has continued to the present. The advent of "socialist" education had provoked controversy and divisiveness, since the economic and social revolution under Cárdenas had moved to what many considered an extreme left position. The 1945 revision of article 3 of the Constitution reflected the new mood of moderation and conciliation, stating:

> The education imparted by the state—federal government, states, municipalities—shall aim to develop harmoniously all of the faculties of the human being and will foment in him, at the same time, love of country and a sense of international solidarity in independence and justice.

The new objectives required parallel changes in structure, content, method, and emphasis. Rural education was brought closer to urban education. All types of schools benefited from an increase in the Federal budget for education from 73.8 million pesos in 1940 to 207.9 million in 1946. The Government launched a massive national campaign against illiteracy; reinstated the cultural missions abandoned in 1938; and created a new institution, *Instituto Federal de Capacitación de Magisterio* (Federal Institute for Teacher Training) to provide noncertified inservice teachers with the opportunity to become certified.

Administrations since 1946 have continued to build and refine the school system to fill the needs of an emerging industrialized society. Plans are underway to have sufficient elementary schools and equipment by 1970. Secondary education and technical and higher education are being adapted and expanded to satisfy new manpower needs. The National University, housed since 1953 in a spacious and attractive site on the outskirts of the Capital and overflowing with students, typifies the new educational emphasis in Mexico. Government support of higher education institutions is constantly growing as more students seek professional training.

The educational system, like the nation itself, has come a long way since the establishment of the Secretariat of Public Education in 1921. Its objectives have always been closely aligned with national social and economic objectives. The percentage of the Federal budget devoted to education has grown from less than 5 percent in 1921 to more than 25 percent in 1967. Illiteracy, probably greater than 70 percent in 1921, was reduced to less than 30 percent in 1968. Although great progress has been made, much more is necessary. In assessing Mexico's educational accomplishments, one must remember that the nation is building rather than merely sustaining an economy and an educational system; and that after the Revolution of 1910 it faced tremendous social and economic obstacles in its struggle against poverty and ignorance.

III.

The School System

CONSTITUTIONAL BASIS

Article 3 of Mexico's 1917 Constitution provides the basis for the country's educational system. Chapter 2 discussed certain revisions of that article. Other revisions state that:

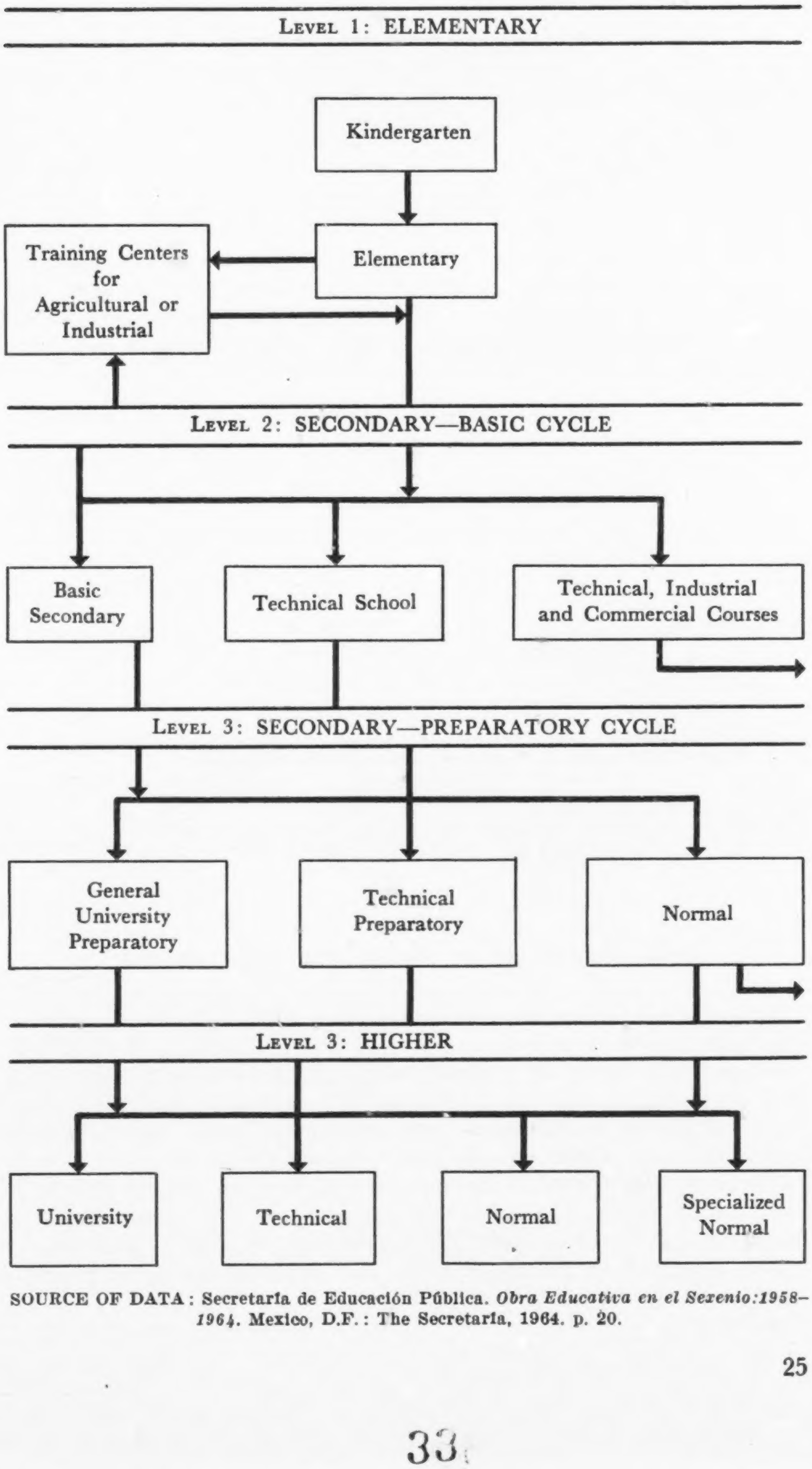
1. Private schools may impart education of all types and levels, but must be officially authorized to provide elementary, secondary, and teacher education, or any type of education for workers or farmers and must conform to the official plans and programs.
2. The State at any time and at its own discretion may revoke official recognition of studies done in private schools.
3. Primary education will be compulsory, and all education imparted by the State will be free.
4. The Federal Congress, with the objective of unifying and coordinating education throughout the Republic, will expedite the necessary laws to distribute educational responsibility among the Federal Government, the States, and the municipalities and to set the financial contribution of each.

All educational efforts, whether by private or governmental entities, must be carried on within the framework of Federal regulation. The Government encourages private effort, but education under that effort must conform to prescribed Federal programs and standards. Even in some types of education not specifically listed in article 3 the Government exercises some control by requiring that the credits and degrees awarded by those types must receive official Government validation.

STRUCTURE

Three distinct levels comprise the Mexican educational system (fig. 1): *elementary* (preschool and elementary), *secondary* (middle—*enseñanza*

Figure 1.—National System of Formal Education


LEVEL 1: ELEMENTARY
Kindergarten
Elementary
Training Centers for Agricultural or Industrial
LEVEL 2: SECONDARY—BASIC CYCLE
Basic Secondary
Technical School
Technical, Industrial and Commercial Courses
LEVEL 3: SECONDARY—PREPARATORY CYCLE
General University Preparatory
Technical Preparatory
Normal
LEVEL 3: HIGHER
University
Technical
Normal
Specialized Normal

SOURCE OF DATA: Secretaría de Educación Pública. *Obra Educativa en el Sexenio:1958–1964.* Mexico, D.F.: The Secretaría, 1964. p. 20.

media), consisting of two cycles, the basic and the preparatory; and *higher*, including university education, technical education, and higher normal schools.

In addition, the system includes institutions of a terminal character, most closely related to the secondary level and embracing normal schools and training centers for agricultural and industrial workers.

ENROLLMENT

Although the vast majority of all those attending school are in the elementary grades, enrollment at this level did not increase as much from 1958 to 1967 as at the other levels (table 1). The percent increases for the three levels were the following: *Elementary*—89; *secondary*—344; *higher*—132.

Table 1.—Enrollment, by educational level: 1958, 1964, and 1967

Level	1958	1964	1967	Percent increase by level 1958-67
Elementary				
Preschool	192, 978	313, 874	354, 557	89
Elementary	4, 105, 302	6, 530, 751	7, 772, 257	
Secondary				
First (basic) cycle	289, 571	626, 506	865, 263	344
Second (preparatory) cycle	62, 822	108, 466	256, 126	
Higher				
Total	66, 405	[1] 126, 118	154, 289	132

[1] This total varies from the 116,628 total given by the Asociación Nacional de Universidades e Institutos de Enseñanza Superior for the same year (see table 7 and app. A). The institutions in the Secretariat's enrollment count may have numbered more than those in the Association's count.

SOURCE OF DATA: Figures for 1958 and 1964 from Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958-1964* (Educational Accomplishments in the Six-Year Period 1958-1964). México, D.F.: The Secretaría, 1964. Various pages.

Figures for 1967 from Secretaría de Educación Pública. Departmento de Estadística Escolar. *Concentración Estadística del Sistema Educativo Mexicano 1967* (Statistical Summary of the Mexican Education System 1967). México, D.F.: The Secretaría, 1968. No pagination.

THE SECRETARIAT OF PUBLIC EDUCATION

The principal Cabinet department in charge of Federal activity in education is the Secretariat of Public Education, created in 1921 under constitutional provision. Other departments, such as the Secretariat of Agriculture and Stock Raising and the Secretariat of National Defense, administer specialized schools; institutions of higher education, like the National Autonomous University of Mexico, administer preparatory schools.

The Secretariat of Public Education administers a vast network of Federal schools of all types and levels and supervises: (1) All schools supported by States and municipalities; (2) elementary, secondary, and normal schools supported by private agencies; and (3) any type of educational activity directed to farmers or workers, as specified in article 3 of the Constitution.

The structure of the Secretariat has expanded with its increased responsibilities. Two subsecretariats, for Technical and Higher Education (*Enseñanza Técnica y Superior*) and for Cultural Affairs (*Asuntos Culturales*), were authorized in 1958; the Directorate of Elementary Education has been restructured to fulfill the requirements of the Eleven-Year Plan (1959–70);[1] and the Directorate of Normal Education has added two subdirectorates—one for rural and the other for urban normals.

For administrative duties, the Secretariat maintains a field staff including a Director of Federal Education in every State capital and numerous zone inspectors. Modern office machines and records provide improved coordination of social assistance, planning, statistical information, and administrative controls.

FINANCING EDUCATION

Federal Support

The Federal Government provides most of the funds for Mexican education. A breakdown of the total 1964 educational budget, for example, shows that the Federal Government contributed more than two-thirds of the total:[2]

Source of support	*Percent*
Federal Government	
Total	*67.91*
Secretariat of Public Education	65.66
Other Federal dependencies	2.25
Other	
Total	*32.09*
States and the Federal District	17.45
Municipalities and other public dependencies	2.81
Private	11.83

From 1958 to 1964, the contribution of the Federal Government to education more than tripled, and the amount and percent of total support for each level increased, with the greatest increase directed to higher education (table 2). Total educational expenditure from all sources almost tripled, and the percent of the gross national product spent on education almost doubled. The nation nevertheless did not reach the goal of 4 percent of the gross national product recommended by the Third Inter-American Conference of Ministers of Education, held in Santiago, Chile, in March 1962.

The following tabulation shows the percent of the entire Federal budget spent on education in 3 selected years:

1959	15.84
1964	25.46
1967	26.12

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[1] See p. 40.

[2] Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–1964*, pp. 500–511. For publication details on this and subsequent citations, see Selected Bibliography.

Table 2.—Amount and percent of educational expenditures, by level and type of support: 1958 and 1964

[Amount in Mexican pesos]

Level and type of support	1958		1964	
	Pesos	Percent	Pesos	Percent
Kindergarten and Elementary				
Total	**1,064,504,255**	**100.00**	**2,776,042,239**	**100.00**
Federal	633, 178, 155	59. 48	1, 828, 300, 395	65. 86
State	309, 326, 199	29. 06	618, 741, 844	22. 29
Other public	19, 000, 000	1. 78	46, 000, 000	1. 66
Private	103, 000, 000	9. 68	283, 000, 000	10. 19
Middle				
Total	**293,174,073**	**100.00**	**895,088,121**	**100.00**
Federal	132, 325, 633	45. 14	453, 986, 845	50. 72
State	18, 848, 440	6. 43	72, 101, 276	8. 06
Other public	3, 000, 000	1. 02	5, 000, 000	. 56
Private	139, 000, 000	47. 41	364, 000, 000	40. 66
Higher Education				
Total	**317,265,375**	**100.00**	**947,110,213**	**100.00**
Federal	211, 105, 575	66. 54	744, 428, 378	78. 60
State	55, 159, 800	17. 39	86, 681, 835	9. 15
Other public	25, 000, 000	7. 88	55, 000, 000	5. 81
Private	26, 000, 000	8. 19	61, 000, 000	6. 44
Other Educational Services				
Total	**138,508,489**	**100.00**	**349,782,982**	**100.00**
Federal	83, 894, 589	60. 57	228, 893, 538	65. 44
State	11, 613, 900	8. 38	58, 889, 444	16. 84
Other public	43, 000, 000	31. 05	62, 000, 000	17. 72
General Services				
Total	**57,992,969**	**100.00**	**207,667,234**	**100.00**
Federal	31, 450, 679	54. 23	137, 208, 558	66. 07
State	10, 142, 290	17. 49	26, 958, 676	12. 98
Other public	2, 400, 000	4. 14	5, 500, 000	2. 65
Private	14, 000, 000	24. 14	38, 000, 000	18. 30

SOURCE OF DATA: Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–1964* (Educational Accomplishments in the Six-Year Period 1958–1964). México, D.F.: The Secretaría, 1964, pp. 501–502

The budget of the Secretariat of Public Education, supporting most Federal educational activity, showed an annual growth rate of more than 42 percent from 1958 to 1964. To increase funds for the urgently needed expansion of secondary and higher education, the Mexican Congress imposed a 1-percent tax on salaries exceeding a prescribed figure.

A breakdown, by level, of the Secretariat's 1958 and 1964 educational expenditures (omitting those for general services, construction, specialized types of nonformal education, and contributions to social security) shows the following:

Educational level	*Percent of total expenditures*	
	1958	*1964*
Kindergarten and elementary	53. 54	46. 85
Secondary	14. 75	15. 10
Higher	15. 96	15. 98

Preschool and elementary education (accounting for nearly 90 percent of total enrollment), received less than 50 percent of the total 1964 expenditures. The proportion going to secondary, as well as that to higher education, increased very slightly from 1958 to 1964.

Total construction expenditures for all levels as a whole increased from 4.89 percent of the Secretariat's expenditures in 1958 to 12.16 percent in 1964, benefiting mainly the elementary level (which covers both kindergarten and elementary classes).

State, Municipal, and Private Support

In 1964, States and municipalities allocated for education nearly 42 percent of their respective budgets as compared with 37 percent in 1960. This increase did not result in expanded services but it did raise teacher salaries to the level of those in Federal schools. Generally, States do not levy an educational tax, and their educational efforts vary widely. For example, the States of Chihuahua, Durango, Nuevo León, and Veracruz allocated more than 50 percent of their total expenditures to education in 1964; the State of Oaxaca, less than 20 percent.

Precise figures for annual per-pupil costs are not available, but from other data the following estimates may be made:

Level	*Per-pupil costs in pesos*	
	1959	*1964*
Elementary	320.18	423.04
Secondary	941.15	1,428.26
Normal school	6,841.42	8,352.11

A type of private support for elementary schools is provided by article 123 of the Constitution, which requires industrial and agricultural enterprises to establish schools for children of their workers. With the breakup of large haciendas under land reform and the increased availability of urban schools, the schools established under article 123 have decreased in number from 445 in 1958 to 417 in 1964.

ECONOMIC AND SOCIAL ASSISTANCE FOR PUPILS

Although education by the State is free, economic circumstances prevent many from taking advantage of it. Children often must work to contribute to family support, and thus absentee and school dropout rates are high. They may work because the father cannot support the family under the community's socioeconomic conditions. This basic fact, recognized by Mexican officials, justifies the extensive program of economic and social assistance for pupils: Free school breakfasts, scholarships, textbooks, and other kinds of aid.

School Breakfasts

Governed by a foundation in which the Secretary of Public Education, the Secretary of Health and Welfare, and the director general of the Bank of

Mexico participate, the *Instituto Nacional de Protección a la Infancia* (National Institute for the Protection of Children) has extended its program of free school breakfasts throughout the country. The President's annual report of September 1, 1967, states that in 1967 almost 900,000 children benefited from these breakfasts.[3]

During 1958–64 the National Institute extended its free breakfast program to day nurseries, kindergartens, social centers for mothers, and welfare centers. The President's wife served as head of the foundation governing the Institute, thus indicating the singular importance that the Government attached to the policy of providing proper nutrition for children. In a country where malnutrition and undernutrition are chronic problems, Mexican authorities give top priority to this program as the most important of its complementary services to education.

Scholarships

The Organic Law of Education requires the community to provide scholarships or other forms of aid, through the Secretariat of Public Education, to needy and worthy pupils in both public and private schools. Although the Secretariat maintains several boarding schools, since 1958 cash scholarships have often been given instead of places in boarding schools. These scholarships are renewed each year according to the pupil's grades of the previous year. During 1958–64 the Secretariat provided direct help in its boarding schools to 24,181 pupils, of whom more than 40 percent were in the rural normals;[4] and in 1964 it awarded cash scholarships to more than 16,000 pupils at various educational levels.

Scholarships are also offered by the Secretariat of Health and Public Welfare, the Secretariat of Agriculture and Stock Raising (for pupils in agricultural schools), and various universities. Private schools must admit tuition-free pupils to the extent of 5 percent of their total enrollments. The Bank of Mexico grants cash scholarships for study abroad to a limited number of postgraduates.

The proceeds of the 1-percent tax imposed in 1962 on incomes above a prescribed figure were intended to be used to expand and improve secondary and higher education and possibly to provide scholarships. As the demands for secondary and higher education increase so will the need for scholarships, since students often must leave their home communities in order to attend institutions of these levels.

Other Assistance

The Secretariat of Public Education maintains Centers of Social-Educational Action primarily to instruct mothers in first aid, job skills, and facts about their rights and duties as citizens. These centers (57 in 1964) link the elementary school and the home by giving mothers a kind of education that enables them to take better care of their children.[5]

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[3] Gustavo Díaz Ordaz. *Tercero Informe*, p. 40.
[4] Secretaría de Educación Pública. Op. cit., p. 226.
[5] Ibid., p. 233.

The Secretariat also sponsors day nurseries for children of its staff, health and sanitation campaigns and services, and extensive programs of physical education and sports, school cooperatives, and school savings plans.

The Institute of Security and Social Services for Government Employees, the Mexican Institute of Social Security, and the Secretariat of Health and Public Welfare devote large shares of their respective budgets to medical and dental services for children and adults.

Although all these agencies complement the educational enterprises, they fall far short of providing all the help that children need in order to take advantage of available educational opportunities.

SCHOOL CONSTRUCTION

Mexico's outstanding success in school construction has attracted attention from many quarters.[6] The ingenious construction of a semiprefabricated rural school, the *aula casa* (see ch. 5), has helped to account for the country's achievements in the past and its goals for the future.

The Administrative Committee for the Federal Program of School Construction (*Comité Administrador del Programa Federal de Construcción de Escuelas*), created in 1944 with capital from the Federal Government, the States, and private sources, built within 20 years 44,267 classrooms, 275 laboratories, and 383 shops. It constructed large installations like the *Escuela Normal Superior* (1946), the *Escuela Nacional de Maestros* (1947), the *Conservatorio Nacional de Música* (1949), and the new *Museo de Antropología* (1964).

Impressed by Mexico's accomplishments in school construction, UNESCO (United Nations Educational, Scientific, and Cultural Organization) and the OAS (Organization of American States), established in Mexico City in 1963 the headquarters for *Centro Regional de Construcciones Escolares para la América Latina* (Regional School Construction Center for Latin America). Through this center Mexico can share her successful methods with other countries searching for a way to build more schools economically, efficiently, and quickly.

THE SCHOOL CALENDARS

Formerly, the 10-month school year followed one or the other of two different calendars, depending on climate. The first (type A) applied to the temperate and cold regions: Schools there opened in February and closed in November, with vacations in May and September. The other (type B) applied to the warm climates: Schools there opened in September and closed in June, with vacations in December and April.

This dual calendar system caused considerable administrative confusion. One proposal before the Secretariat of Public Education advocated that the type-B calendar should be adopted for all schools[7] to facilitate the interchange of students and professors with other countries following similar schedules. The proposal contended that separate school calendars based on climate were unrealistic because of wide climatic variation within geographic regions.

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[6] Ibid., pp. 15–16, 73–77.

[7] *Excelsior*, Nov. 9, 1965.

In December 1965, the Secretary of Public Education, Agustín Yáñez, announced a plan to consolidate the two school calendars by gradually phasing out the type A one.[8] In 1968 the transition to a single calendar was well under way, and when it has been completed in 1970, there will be a uniform school year of 177 days, beginning September 2 and ending in July.[9]

THE PROPOSED REFORMS OF 1968

In September 1968, the *Comisión de Planeamiento Integral de la Educación* (Commission for Integral Planning of Education), named by the Government and composed of distinguished leaders from both inside and outside the field of education, recommended to the Secretary of Public Education specific goals, with target dates of 1970 and 1980.

The Commission asserted that the chief educational problem was low achievement and that teaching results were not commensurate with teaching efforts. It called for an educational system that would produce a new type of Mexican who is "capable of thinking and creating"—not one who "repeats and imitates."

Some of the Commission's specific recommendations were the following:

1. *Expenditures for education.* The amount should be 3.2 percent of the GNP by 1970 and 4.43 by 1980.
2. *Preschool education (kindergarten).* The number of years should be reduced from 3 to 2. Public kindergartens should enroll only the children of workers, farmers, and others with low incomes. Language instruction for kindergarten children in Indian communities should be greatly expanded.
3. *Elementary education.* Medical and social services should be expanded. The number of over-age pupils should be reduced by offering semester courses and by eliminating attendance for 6 years as the criterion for completion of elementary school. Each pupil should have a card on which his aptitude would be recorded systematically, beginning with the first grade.
4. *Secondary education.* By 1970 the secondary school capacity should be increased to accommodate the number of elementary school graduates desiring to enter. By 1970 all youths unable to undertake study for a professional career should have the alternative of terminal study in some specialization. Secondary teachers by 1970 should be employed on a full- or half-time basis rather than by the hour. All adolescents not finishing secondary school should be eligible to enter the Training Centers for Work or other affiliated programs.
5. *Higher education.* A higher education law should be approved, specifying the consultative functions of the Association of Universities. Instruction in science and technology should be stressed to support national development.

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[8] Ibid., Dec. 18, 1965.
[9] Ibid., Nov. 4, 1968.

IV.

Kindergarten

The first step on the Mexican educational ladder is the *jardín de niños* (kindergarten) for children of ages 4 to 6. Although kindergartens officially comprise 3 years, most of them offer only 1 year immediately preceding the first grade.

Kindergartens were established in Mexico in 1904 [1] after a commission of Mexican educators had completed a study of kindergartens in Boston, New York, and San Francisco. In 1910 the National Normal School for Women in Mexico offered a course for kindergarten teachers. During the war period of the Revolution only a few kindergartens were established, and most of them had disappeared by 1921 when the Secretariat of Public Education was created.

After 1921 kindergartens reappeared slowly. They had in fact been available only to children of the wealthy classes in the large cities, but in 1934 the Six-Year Plan extended kindergarten education to children of workers and farmers by establishing the first rural kindergartens. In 1937 kindergarten control was transferred from the Secretariat of Public Education to the Department of Child Welfare, but was returned in 1942 to the Secretariat, where it remains.

PRESENT STATUS

Progress in extending kindergarten education, which is not compulsory, has necessarily been slow, since there are not enough schools for elementary education, which is compulsory. The 1960 census [2] lists 2,340,684 children between the ages of 4 and 6; in 1967 the number was probably higher. In 1967 kindergarten enrollment was only 354,557—probably less than 15 percent of the potential enrollees. One-half of that enrollment was in Federal kindergartens.

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[1] *La Educación Pre-Escolar en México* by Rosaura Zapata gives a comprehensive treatment of kindergarten development in Mexico. For publication details on this and subsequent citations, see Selected Bibliography.

[2] Secretaría de Educación Pública. *Informe para la Tercera Reunión Interamericana de Ministros de Educación que Presenta el Gobierno de los Estados Unidos Mexicanos Por Conducto de la Secretaría de Educación Pública*, p. 26. (Subsequent footnotes for this source throughout the remainder of the present study will refer to the source simply as *Informe*.)

The number of kindergarten schools, teachers, and pupils increased considerably, however, from 1958 to 1967 (table 3), and kindergarten expenditures more than doubled during the 6 years from 1958 to 1964 (table 4). In short, some progress has been made toward the proclaimed but still far-off goal of a kindergarten in every elementary school.

Table 3.—Number of kindergartens, teachers, and pupils, by type of support 1958 and 1967

Type of support	Schools		Teachers		Pupils	
	1958	1967	1958	1967	1958	1967
Total	**1,632**	**2,642**	**5,508**	**8,859**	**192,978**	**354,557**
Federal	801	1,481	2,663	4,853	100,503	290,498
State	629	845	2,032	3,255	74,642	121,775
Private	202	316	813	751	17,833	23,284

SOURCE OF DATA: Figures for 1958 from Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–1964* (Educational Accomplishments in the Six-Year Period 1958–1964). México, D.F.: The Secretaría, 1964, p. 27.

Figures for 1967 from Secretaría de Educación Pública, Departmento de Estadística Escolar. *Concentración Estadística del Sistema Educativo Mexicano 1967* (Statistical Summary of the Mexican Education System 1967). México, D.F.: The Secretaría, 1968. No pagination.

Table 4.—Expenditures for kindergartens, by type of support: 1958 and 1964

[Amounts in Mexican pesos]

Type of support	Amount in pesos	
	1958	1964
Total	**51,314,363**	**138,341,601**
Federal	30,715,563	85,743,105
State	15,598,800	35,595,496
Other public	1,000,000	3,000,000
Private	4,000,000	14,000,000

SOURCE OF DATA: Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–1964* (Educational Accomplishments in the Six-Year Period 1958–1964). México, D.F.: The Secretaría, 1964, p. 27.

OBJECTIVES

The program of studies for the three grades of kindergarten is organized to achieve five major objectives, namely, to—[8]

1. Protect and improve mental and physical health.
2. Understand and use the natural environment.
3. Understand and improve social life.
4. Develop skills in practical activities.
5. Develop self-expression and creativity.

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[8] *Educación*, No. 4, pp. 37, 51–58, June 1960.

The child is expected to achieve the five objectives through games and activities, including seeding and watering plants, caring for animals, and performing other chores similar to those of adults. The Mexican kindergarten has adapted to the Mexican environment the basic principles of Froebel, founder of the first kindergarten, who believed it could be a powerful force for individual and social development and for understanding the unity of man with nature.

PROBLEMS AND RECOMMENDATIONS

Although the importance of kindergarten education is clearly recognized, its development has been hampered by the following problems:

1. **Lack of official support equal to that given to compulsory educational levels.**
2. **Availability to only a small percent of the population.**
   (Most kindergartens are in large cities.)
3. **Lack of minimum hygiene and comfort facilities.**
   (Many kindergartens operate in old houses or in buldings having no patio or garden.)
4. **Teachers often without necessary qualifications.**
   (Many teachers, however, have benefited from courses offered in various parts of the country by the *Dirección General de Educación Pre-escolar, Secretaría de Educación Pública*—General Directorate of Preschool Education, Secretariat of Public Education.)

To resolve kindergarten problems, the National Technical Council on Education made the following recommendations: [4]

1. New positions for kindergarten teachers, beginning in 1965, should be assigned preferentially to the workers' colonies in the large cities and to large communities.
2. The Secretariat of Public Education should promote the cooperation of private initiative to increase the number of kindergartens throughout the country.
3. Attention should be given to the proper training of teachers in kindergartens founded by private initiative to guarantee efficient functioning.
4. The Secretariat of Public Education should formulate and put into operation an inservice training program for teachers lacking professional titles.

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[4] Ibid., p. 80.

V.

Elementary Education

Compulsory for all children between the ages of 6 and 14, 6-year elementary schools are a government responsibility (Federal Government, States, and municipalities). All public schools are free. Legally authorized private schools may operate, but like the public schools they must conform to standards and curriculums set by the Federal Government.

ADMINISTRATIVE ORGANIZATION

The Secretariat of Public Education has complete charge of all Federal elementary schools. It also directs, administers, and supervises the federalized schools (schools that exist by virtue of contracts between the Federal Government and some States); asserts similar authority over schools supported by agricultural and industrial enterprises in accordance with article 123 of the Constitution; supervises the private schools incorporated in the Federal system; and supervises schools maintained by other Federal departments. A Director of Federal Education located in the capital of each State is charged with administering the Federal educational program.

State governments support and administer still other public schools and supervise both the private schools incorporated in the State school systems and the public schools maintained by municipalities. In effect, Mexico operates a dual educational system, with the States and Federal Government each supporting and administering schools often located near each other. Apparently the system functions with a high degree of cooperation and with a minimum of difficulties from overlapping jurisdictions or duplication of effort.

The basic program of all elementary schools is prescribed by the Secretariat of Public Education. Insofar as States formulate their own programs, they are merely modifying the basic one to adjust it to economic, geographical, and social factors.

Elementary schools are classified by location as urban, semiurban, or rural. The last group has been the main concern of the Federal Government rather than of the States. Since the early days of the Revolution, when the refrain "land and schools" became popular, the rural school has been considered an instrument for agricultural and social reform. In the past, rural schools sometimes lacked the upper three of the six elementary grades, but a great effort is being made to fill the void.

ENROLLMENT

In the colonial period, elementary education was neglected and it continued to be neglected after independence. By 1910, when the total population had reached 15,160,369, only 848,062 children (about 24 percent of the elementary school-age population) were attending school.[1] In 1921, efforts to provide elementary schooling and to enroll more children in it began with José Vasconcelos, Mexico's first Secretary of Public Education. In 1958, over 58 percent of elementary school-age children were attending school.[2]

From 1958 to 1967, overall enrollment in elementary schools increased by more than 80 percent (table 5). Over 50 percent of all elementary

Table 5.—Number of elementary schools, teachers, and pupils, by type of support: 1958, 1964, and 1967

Item, by type of support	1958	1964	1967
Schools			
Total	**30,816**	**37,756**	**41,510**
Federal	18,406	23,596	26,952
State	10,426	11,147	11,384
Private	1,984	2,833	3,174
Teachers			
Total	**95,191**	**141,963**	**158,736**
Federal	55,521	82,865	95,394
State	29,003	42,532	44,681
Private	10,667	16,566	18,661
Pupils			
Total	**4,105,302**	**[1] 6,530,751**	**7,772,257**
Federal	2,166,650	3,939,994	4,786,757
State	1,580,761	1,982,151	2,271,877
Private	357,891	608,606	713,623

[1] The first source gives the following breakdown of the 1964 enrollment by grade: *First*, 2,555,877; *second*, 1,387,707; *third*, 1,048,326; *fourth*, 771,893; *fifth*, 597,048; *sixth*, 469,900.

SOURCE OF DATA: Figures for 1958 and 1964 from Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–1964* (Educational Accomplishments in the Six-Year Period 1958–1964). México, D.F.: The Secretaría, 1964.

Figures for 1967 from Secretaría de Educación Pública, Departmento de Estadística Escolar. *Concentración Estadística, del Sistema Educativo Mexicano 1967* (Statistical Summary of the Méxican Education System 1967). México, D.F.: The Secretaría, 1968. No pagination.

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[1] Secretaría de Educación Pública. Consejo Nacional Técnico de la Educación. *VII Asamblea Nacional Plenaria*, p. 30. For publication details on this and subsequent citations, see Selected Bibliography.

[2] Ibid., p. 31.

schools, teachers, and pupils were part of the Federal system. Private schools enrolled less than 10 percent of all children attending school.

Although overall elementary school enrollment increased spectacularly between 1958 and 1967, a sharp decline occurred between grade 1 and grade 6. For example, in 1964, when 2,555,877 children were attending grade 1, only 469,900 were attending grade 6 (table 5, footnote 1).

Despite the fact that the Federal Government tends to dominate the elementary level and that its efforts are widely publicized through publications of the Secretariat of Public Education, several States such as Jalisco, Nuevo León, and Veracruz also direct and maintain strong educational systems at that level.

CURRICULUM AND OBJECTIVES

In July 1959, the Secretary of Public Education directed the *Consejo Nacional Técnico de la Educación* (National Technical Council on Education) to study and revise the elementary curriculum so that it would contribute more to the growth of civic responsibility and practical skills. The curriculum proposed by this body was put into effect in 1960[3] and its basic structure remains the same today.[4] It aims to coordinate the school's activities, content, curriculum, methods, and objectives with life in the home and in the local, national, and world communities. It was not organized by subject, but rather by six major functions of elementary education; namely, to—

1. Protect health and improve physical fitness.
2. Promote study of the physical environment and of the conservation of natural resources.
3. Create understanding of the social life and improve social life.
4. Teach creative activities.
5. Teach practical activities.
6. Develop the elements of culture.

None of the six functions has priority, but all are to be developed systematically through each grade of the 6-year elementary school. Because of the high dropout rate, particularly in the rural areas, an intensive program during the first 4 years aims to give the potential dropout better preparation for work and uesfulness in the community. In the fifth and sixth years the aim is to amplify and strengthen the teachings of the previous 4 years, and to intensify manual activities according to individual pupil aptitude and national economic and technical need.

The official program[5] prepared and distributed by the Secretariat of Public Education expands in detail all phases of the elementary program, but provides few concrete suggestions on teaching methods and techniques.

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[3] *Educación*, No. 4, pp. 38–40, June 1960.

[4] A critical analysis of the program by Francisco Muñoz Ledo points out four defects: (1) Lack of a philosophy, (2) lack of experimentation in pilot schools, (3) insufficient teacher preparation, (4) lack of an evaluative plan. (See bibliographic entry, Centro de Estudios Educativos, *Los Nuevos Programas de Enseñanza.*)

[5] Secretaria de Educación Pública. *Programes de Educación Primaria Aprodados por el Consejo Nacional Técnico de la Educación.*

SPECIAL ELEMENTARY SCHOOLS

Boarding schools, social assistance schools, schools for Indian children and special education schools comprise the group of special elementary schools.

Boarding and Social Assistance Schools

The Organic Law of Public Education provides for scholarships and other forms of aid to needy children who have distinguished themselves in school by their efforts and achievements. The Secretariat of Public Education fulfills the law by assigning places to such children in boarding or social assistance schools. In these schools children receive the benefits of both home and school, and the schools follow the program prescribed for all elementary schools.

Shops in the boarding and social assistance schools are particularly well equipped. Articles produced in them are sold for the benefit of the pupils and the schools. In 1964, 29 boarding and 14 social assistance schools were functioning, distributed geographically as follows: *Boarding*—23 in the States and Territories, three in the Federal District; *public assistance*—all in the Federal District.

The States and other Federal departments besides the Secretariat of Public Education maintain schools similar to the boarding and special assistance schools.

Schools for Indian Children

In organization and program, schools for Indian children resemble other elementary schools. They differ by virtue of the fact that they cater to Indian children and, preferably, are taught by Indian teachers who know the customs, language, and problems of the particular region. The considerable progress achieved in 6 years by such schools located in municipalities having more than 20 percent Indian population is shown by the following figures:[6]

Item	*1958*	*1964*
Pupils	301,957	607,867
Schools	3,345	5,323
Teachers	6,561	12,042

Indian children also have access to boarding schools operated for them as a group on a regionwide basis. These schools admit Indian pupils 10 to 14 years of age from the region where the particular school is located. To be admitted, an Indian child must have completed at least 3 years of schooling—generally the maximum number of years offered in Indian communities.

The progress achieved in 6 years by the Indian boarding schools is set forth below:[7]

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[6] Ibid., *Obra Educativa en el Sexenio 1958–1964*, p. 54.
[7] Ibid., p. 55.

Item	*1958*	*1964*
Pupils	2,722	5,221
Graduates	672	1,053
Schools	21	23

Graduates of the 23 Indian boarding schools are recruited and trained by the *Servicio de Promotores Culturales* (freely translated, Service for Cultural Advancement), operating under the General Directorate of Indian Affairs, to become *promotores.* In their work as *promotores,* they attempt to teach Spanish, the national language, to Indian children who speak only a native language, and thus prepare these children for first grade. From 1964 to 1966 the total number of such children served was 42,000 and the number of *promotores* increased during that period from 600 to 1,400.[8]

Special Education Schools

In 1958 Mexico had only one special education school; its pupils numbered 249. In 1964, the number of such schools had grown to nine and, of these nine, two were for mentally deficient adolescents, the first schools of that kind in Latin America. Overall selected 1964 statistics for the nine schools (all Federal) were as follows:

1,542	pupils
154	teachers
9	physicians
9	sociologists
8	social workers

The nine Federal schools are under the jurisdiction of the *Oficina de Coordinación de Educación Especial,* which offers guidance to eight special education schools supported by the following States: Colima, Chihuahua, Oaxaca, San Luis Potosí, Sinaloa, Sonora, and Veracruz.[9]

THE ELEVEN-YEAR PLAN: 1959–70

The National Commission

In 1958 the Mexican Congress authorized a National Commission to formulate a plan to resolve the problems of elementary education in the whole country. Composed of representatives of the legislative and executive branches collaborating with business and labor interests, this Commission proposed an 11-year plan officially termed the *Plan Nacional para el Mejoramiento y la Expansión de la Educación Primaria en México* (National Plan to Improve and Expand Elementary Education in Mexico).[10] Ranking as one of the most ambitious undertakings in the history of Mexican education, it has attracted nationwide attention.

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[8] Ibid., *La Educación Pública en México,* p. 14.

[9] Ibid., pp. 59–60.

[10] For detailed information, see the following publications of the Secretaría de Educación Pública: *Informe* (p. 159–62), *Obra Educativa en el Sexenio 1958–1964* (pp. 28–47), and *El Plan de Mejoramiento y Expansión de la Educación Primaria.*

The Commission first undertook to find out the extent of the actual demand for elementary education and the reasons for low enrollment and attendance, such as: (1) Deficiencies in the educational system itself—too few teachers and classrooms, for example; and (2) deficiencies in the country's economic and health conditions.

The next year, in 1959, the Commission reported that Mexico's elementary school-age population (6 to 15 years old) could be classified as follows:

Total	*7,634,000*
In school	4,437,000
Not in school because teachers or classroom were lacking or because the children spoke some language other than Spanish	1,700,000
Not in school because children had completed elementary schooling, were sick, or lacked interest; or because family was too poor or did not encourage children to attend school	1,497,000

The Commission fixed a period of 11 years as necessary for accomplishing realistic objectives in elementary education without overburdening the country's economy. Using population projections for 1970, it estimated that 7,195,000 children [11] would then be enrolled in the elementary schools, requiring 67,000 new teachers to be trained. It recommended that 30,689 noncertified teachers be given the necessary preparation for becoming certified and it estimated the 1970 needs for budget allocations, classrooms, and textbooks. Since the Commission based its 1970 estimates on 1959 figures that might well require upward revision once the 1960 census was taken, it recommended that all its projections be adjusted later in light of that census.

Achievements

The Eleven-Year plan has proceeded ahead of schedule. By 1962 it had achieved its 1964 national goals. The overall national figures, however, conceal uneven progress among the various States. For example, in 1962, 21 percent of Tabasco's elementary school population, but only 11 percent of Chiapas', were in school.[12]

In 1964, the Commission had achieved its 1967 national goals, but again wide disparities appeared among the States.[13] Looking toward eventual elimination of these disparities, the Secretary of Public Education in 1963 had ordered that a commission be established in every State and Territory and in the Federal District to determine, locality by locality, the real educational needs and to devise a plan to meet them. *Plan Jalisco* and *Plan Veracruz,* the first of the responses to the Secretary's order, went into effect in 1964.

Problems

The Eleven-Year Plan has been criticized as "statistical," concerned more with the quantitative aspects of education than with the qualitative.

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[11] A 1966 publication of the Secretariat, *La Educación Pública en México,* revised this figure upward to 8,847,000 (p. 2).

[12] Secretaría de Educación Pública. *Informe,* p. 161.

[13] Ibid., *Obra Educativa en el Sexenio 1958–1964,* pp. 41–42.

Also, Ernesto Enríquez, in his comprehensive, searching evaluation of the plan,[14] questions whether the data on which its projections were based are in fact accurate and sufficient. He believes the plan to be over-optimistic since its projections include the 3-percent of the school-age children who do not attend school because of factors not attributable to the school system. Moreover, unless (Enríquez contends) the country's prevailing social and political organization changes markedly, it is unlikely that schools will be established for many years to come in the hamlets of fewer than 100 inhabitants, where (according to the 1960 census) a total of 381,000 school-age children live. Enríquez further maintains that a realistic plan must take account of historical factors such as the high rate of dropouts and grade-repeaters—a rate unlikely to become lower under a master plan.

All these criticisms imply that, since the Eleven-Year Plan projections are based on idealized educational needs rather than demonstrated actual needs, they are unrealistic. One evidence of such projections is that the large number of teachers being graduated from State and private normal schools creates an oversupply that cannot be employed in the school system at present.

Despite its shortcomings, the plan has made notable progress in achieving its twin goals of eliminating the elementary educational backlog and keeping up with the country's high birth rate. Already more than 60 percent of the school-age population are enrolled in school and the prospect is for a higher percent by 1970. Not even the most idealistic planner expects 100-percent compliance with the constitutional requirement of compulsory school attendance, the declared aim of the Eleven-Year Plan.

Many practical problems remain:

1. **Nonattendance at school caused by economic and social conditions.**
   (Educational planning cannot eliminate this kind of nonattendance.)
2. **Disproportionate development of the plan among States.**
   (Some States had practically reached their 1970 educational goals by 1965, while others had barely started development. State and regional planning commissions may help correct this problem.)
3. **Imbalance of teacher supply and demand.**
4. **Inequitable sharing of the cost of educational expansion.**
   (The Commission must devise an effective procedure to assure that the cost is shared equitably by the Federal Government, the States, and private sources—heretofore, the Federal Government has carried the largest share.)

The plan's greatest successes have been achieved in the country's advanced areas, where continued progress is most easily realized. The real test will come in the laggard areas, where educational progress, like economic progress, has been frustratingly slow. Whether or not the Eleven-Year Plan achieves its goals by 1970, it is a significant landmark in the development of Mexican education.

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[14] "Estimación del Progreso Obtenido en la Ejecución del Plan Nacional para el Mejoramiento y la Expansión de la Educación Primaria en México." *Educación*, No. 9, pp. 207–60, February 1964.

COROLLARIES OF THE PLAN

Consolidated Schools

The Commission that formulated the Eleven-Year Plan found that in 1959 only two of every 100 pupils who started the first grade finished the sixth.[15] In 1964, only about 25 percent of the elementary schools functioned with all six grades.[16] The vast majority of rural schools, for example, did not provide the upper grades. According to the 1960 census data, 27,098 hamlets had fewer than 500 inhabitants and 51,555, fewer than 100.[17]

Since a 6-year elementary school is hardly feasible in such small-population centers, the Federal Government has established *escuelas de concentración* (consolidated schools), which admit pupils from schools not offering all six grades. Although an important contribution to the goals of the Eleven-Year Plan, the consolidated schools create problems such as those concerned with transportation, lunches, and other services to pupils who must come long distances every day.[18]

Rural School Construction

The Eleven-Year Plan calls for construction of 2,000 semiprefabricated rural classrooms per year. By 1964, a total of 12,000 (over half the final goal) had been built, and 8,000 of them provided housing for teachers.[19]

Such a structure, or classroom-teacherage (*aula-casa*) constituted Mexico's entry in an exhibit of rural school buildings held at Milan, Italy, in 1959, where it won a prize. A widely accepted model for semiprefabricated rural schools, the *aula-casa* starts out at the factory with a basic structure containing furniture and equipment. Brought to a rural community, this structure then is given a foundation and roof, constructed on the site by people of the community using materials and methods native to the particular region. Finished, the *aula-casa* contains a 48-pupil classroom, sanitary services, and the teacher's quarters consisting of a living room, dining room, study, two bedrooms, kitchen, bathroom, and service patio.

Mexico's long and successful pioneering in rural school construction has yielded results applicable to the construction of other types of schools. For example, in urban areas the *aula-casa* of one story became a two-story building, again semiprefabricated. From 1958 to 1964 the construction of both rural and urban versions reached a record of 21,815 elementary classrooms [20]—about 10 per day. The 1967 record, revealed in President Díaz' annual report of September 1, 1967, was 8,588 elementary classrooms [21]—over 20 per day.

Free Textbooks

In 1959 a National Commission on Free Textbooks (*Comisión Nacional de los Libros de Texto Gratuitos*) was created to devise guidelines for pre-

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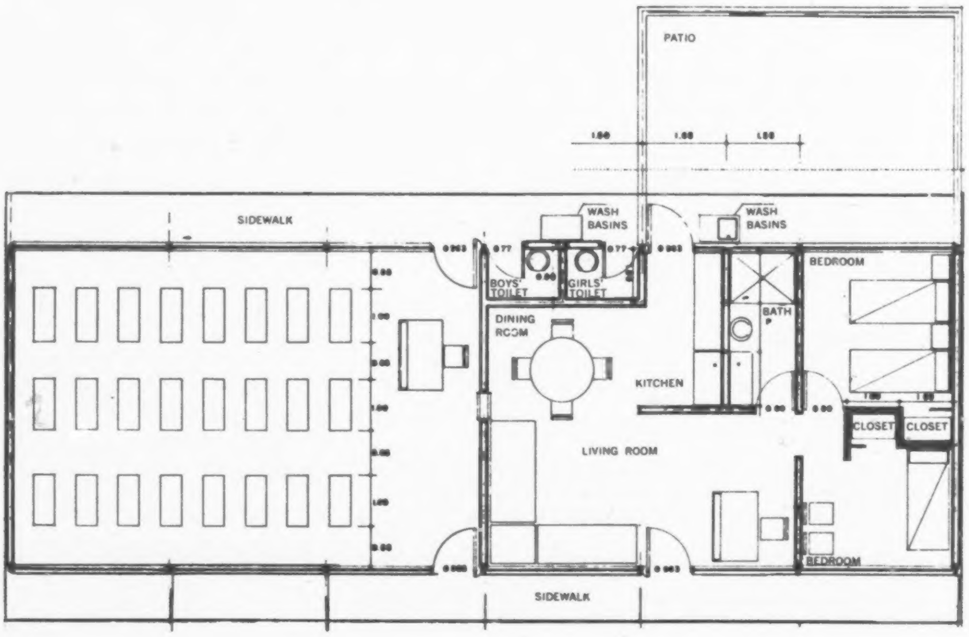
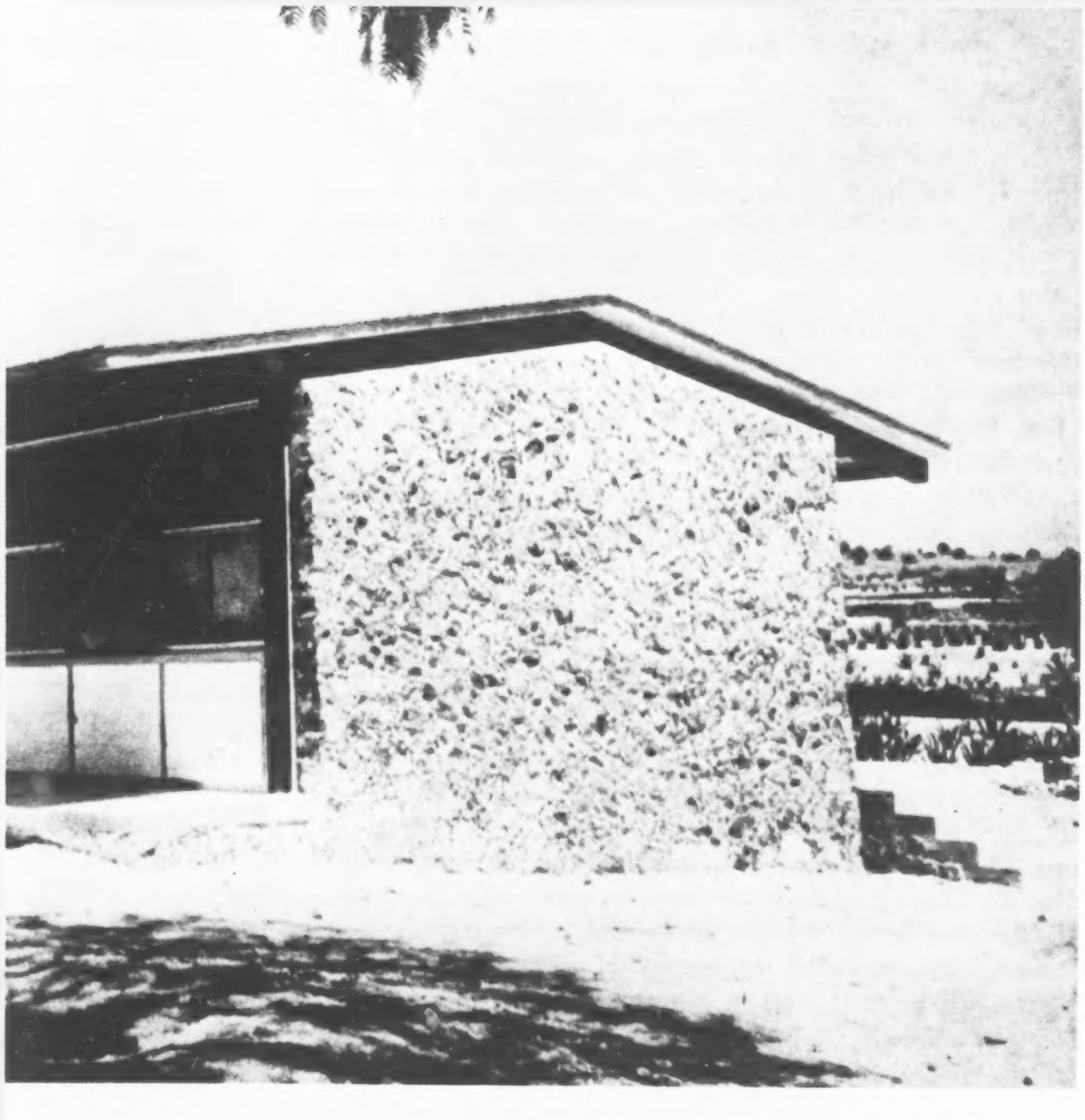
[15] Secretaría de Educación Pública. *VII Asamblea Nacional Plenaria*, p. 37.
[16] Ibid., *Obra Educativa en el Sexenio 1958–1964*, p. 47.
[17] Ibid., *VII Asamblea Nacional Plenaria*, p. 37.
[18] Ibid.
[19] Sindicato Nacional de Trabajadores de la Educación. *Construcciones Escolares Rurales en México*, p. 3.
[20] Secretaría de Educación Pública. *Obra Educativa*, p. 75.
[21] Gustavo Díaz Ordaz, *Tercero Informe*, p. 45.


PATIO
1.80
1.80
1.80
SIDEWALK
WASH BASINS
WASH BASINS
BEDROOM
BOYS' TOILET
GIRLS' TOILET
BATH
DINING ROOM
KITCHEN
CLOSET
CLOSET
LIVING ROOM
BEDROOM
SIDEWALK



RURAL SCHOOL WITH TEACHER'S HOME
(The Mexican *aula-casa*)

paring and distributing text- and workbooks for all six elementary grades. From 1959 to 1964, four textbook contests were held, with prizes for the winning authors. By 1964, a total of 33 text- and workbooks had been published and six more were being edited;[22] and by May 1964, a total of 107,155,755 text- and workbooks had been distributed.[23] The average per-volume cost from 1960 to 1963 was 2.45 pesos (about 20 cents).[24] President Díaz' report to the Congress in September 1967 stated that his administration had distributed 46 million text- and workbooks that year.

Text- and workbooks are free to pupils in public and private schools alike, and their use is compulsory. Critics have attacked the policy of free, compulsory textbooks on two grounds: (1) A compulsory textbook violates the freedom of belief guaranteed by article 3 of the Constitution, and (2) it could be used as a potential propaganda weapon. Defenders of the compulsory textbook policy claim that it conforms completely with article 3 because the use of supplementary textbooks and references is encouraged, with the result that the free, compulsory textbook is not the only textbook. They challenge the critics to single out textbook passages that violate Mexican democratic principles.[25] They contend that if public education is to be free, as the Constitution states, then parents should be relieved of textbook-buying expense. The defenders do not claim, however, that better education would result from providing a single textbook rather than several from which the teacher might choose; they concede that although the second alternative might be preferable, nevertheless economic circumstances dictate that only the one free, compulsory textbook be provided.

The controversy over free textbooks has been a spirited one, partly because schools had already been the scene of controversy over church versus state control, although that issue recently has been quiescent in most parts of the country. Monterrey especially has been the scene of the greatest debate over free textbooks. For the most part this debate has now subsided, and plans are underway for the National Government to have free textbooks produced and distributed on subjects not yet covered. Also the National Government is encouraging States and Territories to produce free textbooks on State folklore, geography, and history.[26]

EVALUATION AND RECOMMENDATIONS

In November 1964, approximately at midpoint of the Eleven-Year Plan, the *VII Asamblea Plenaria* (Seventh Plenary Assembly) of the National Technical Council on Education evaluated the work of the Secretariat of Public Education over the previous 6 years and made numerous recommendations for the Secretariat in its development of elementary education. This influential and powerful body's conclusions and recommendations carry considerable weight in Mexican educational circles.

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[22] Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–1964*, p. 61.
[23] Ibid., p. 64.
[24] Ibid., p. 65.
[25] Ibid., p. 71.
[26] Ibid., *VII Asamblea Nacional Plenaria*, p. 37.

Eleven of the Assembly's recommendations were the following:[27]

1. *Educational costs:* Pass laws that will require educational costs to be distributed among the Federal, State, and municipal governments.
2. *Educational programs:* Continue to orient teachers in the new educational programs.
3. *Eleven-Year Plan:* Push the plan with continuing vigor to assure its fulfillment.
4. *Evaluation of results:* Apply the best techniques in evaluating results of the plan.
5. *Indian communities:* Continue attention to monolingual Indian communities by: (1) Increasing the number of *promotores,* (2) establishing more elementary schools and boarding schools in bilingual communities, and (3) instituting a school supervision system independent of the national system of elementary education.
6. *Residence of inspectors and teachers:* Require inspectors and teachers to live where they are assigned.
7. *Rural schools:* Establish many more consolidated schools and elementary boarding schools in rural areas.
8. *Schoolbooks:* Continue Federal distribution of free textbooks and workbooks, and encourage States to prepare and distribute free books on State folklore, geography, and history.
9. *Slow learners:* Establish for slow learners a separate national system of education and increase the number of schools devoted to teaching only this group of pupils.
10. *State commissions of education:* Establish commissions that would make regional plans for accelerating the national plan's fulfillment.
11. *Supervisory system:* Study the supervisory system thoroughly and modify it as necessary.

Even if Mexico achieves the goal of the Eleven-Year Plan—to meet elementary school needs by 1970—the public, made aware since 1921 of the need for more and better schools, will then demand more education at another level or of another kind. The Mexican people's rising expectations were described in late 1965 by the then Secretary of Education, Agustín Yañez, who said the following in a newspaper interview:

> Where there is an elementary school, the people want a secondary school; where there are both elementary and secondary schools, they demand a preparatory school and a normal; where there are both, they ask for a technological school or even a university.[28]

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[27] Ibid., pp. 43–45.

[28] *Excelsior,* Dec. 18, 1965.

VI.

Secondary Education

The term "secondary education" is used here as a translation for *educación media* (middle-level education). This level is divided into two cycles: (1) The first or basic cycle of 3 years, known as *educación secundaria,* and (2) the second or preparatory cycle of 2 or 3 years, known as the *ciclo secundario.* The basic cycle is composed of general or technical education; and the preparatory cycle of the following: (1) Preparatory courses required for higher education in universities or higher technical schools, (2) normal school education for elementary and kindergarten teachers, or (3) terminal courses required for middle-level professions.

DEVELOPMENT OF THE PRESENT SYSTEM

Thoughout the colonial period and the 19th century, the educational system reflected the dual nature of Mexican society—a small dominant elite and the uneducated masses. Secondary schools were highly selective and served as the gateway to the universities and professions. At first, secondary schools were directed by the church; later, by the universities.

The Revolution in 1910 broke this dual society pattern. Industrialization and urbanization, as well as the Revolution's new philosophy, forced changes in the structure of the secondary school. Until 1926 the term *educación media* was not even used; all education for adolescents was called *educación preparatoria* (preparatory education). In 1926, a major reform occurred, radically changing the purpose and structure of the secondary school. Separated from the 5-year university preparatory program, the first 3 years were designated as *educación secundaria,* or the basic cycle, and freed from university domination. This 3-year program became a distinct unit in the educational system, continuing the elementary school's general education and adding prevocational training. As a counterpart to its rural school program for agricultural workers, the Federal Government began to foster an urban school program for workers. Today, Federal dominance in vocational and technical education still prevails. The university preparatory schools have continued to function, not as 5-year, but only as 2- or 3-year institutions.

In 1959, the term *educación media* received official sanction and is used today to include both the basic and preparatory cycles, which offer all types of postelementary education. Although *educación media,* or secondary education, is not required, and the Constitution does not obligate the Federal Government or the States to supply it, both are active in providing education at this level.

THE BASIC CYCLE

The basic secondary cycle includes primarily the following types of schools: (1) Day schools for adolescents and night schools for working adults, (2) normal schools, and (3) technical schools that offer training for subprofessional industrial and commercial positions. (Normal schools will be discussed in ch. X.)

Table 6.—Number of hours per week, per subject and activity, in each year of the 3-year basic cycle of secondary education: 1960

[-------- indicates that subject or activity was not given]

Subject and activity	Year		
	First	Second	Third
Total	**33**	**33**	**33**
Subject			
Biology	4	4	--------
Chemistry	--------	--------	4
Civic education	2	2	3
Foreign language	3	3	3
Geography	3	3	--------
History	3	3	--------
History of the 20th century	--------	--------	2
Mathematics	4	4	3
Physics	--------	--------	4
Spanish	4	4	3
Activity			
Art	2	2	2
Guidance	--------	--------	1
Physical education	2	2	2
Technical training	6	6	6

SOURCE OF DATA: Secretaría de Educación Pública. *Educación—Revista de Orientación Pedagógica Organo del Consejo Técnico de la Educación* (Education—A Teacher Training Journal, Organ of the Technical Council of Education). México, D.F.: The Secretaría, June 1960, appendix.

Under authority of article 3 of the Constitution, the Federal Government prescribes the curriculums for elementary, basic-cycle secondary, and normal schools. The present curriculum, outcome of a 1959 study by the National Technical Council of Education, is simplified and streamlined, reducing the previous 13 subjects per grade to seven subjects and three activities (four in last year). It attempts to balance the academic and the practical (table

6). Each subject is intended to fill a dual role, as a vehicle of culture and as a means of individual development. The aims of the program are to—

1. Develop the pupil's personality (a continuation of the elementary school aim).
2. Increase the skills and knowledge required for entering the preparatory cycle or technical schools, through practical work in the classroom, laboratories, and shops.
3. Give information about international organizations to which Mexico belongs.
4. Strengthen the sense of national unity and the awareness of the need for international cooperation.

Technical schools provide another type of education considered part of the basic secondary cycle. In 1964, the Federal Government maintained 76 technical schools, and the States and private organizations many more. In November 1965, President Díaz approved standardization of the programs of technical schools and of schools offering general courses, so that their graduates could enroll either in preparatory schools leading to the university or in technical vocational schools of the preparatory cycle.[1]

THE PREPARATORY CYCLE

When a student completes the basic secondary cycle, he may: (1) Enter either a general or a technical preparatory school (prerequisite for higher studies), or (2) pursue a terminal program leading to a middle-level professional career.

General Preparatory

Traditionally, the general preparatory schools have functioned as dependencies of the universities. In 1966,[2] slightly over 50 percent of the students in the preparatory cycle were attending general preparatory schools. Of the students in those schools, over 60 percent were in the general preparatory schools of the National Autonomous University of Mexico (whose name is often shortened to National University) or of the State universities. Slightly more than 20 percent of these general-preparatory school students were girls.

Private preparatory schools in the same year (1966)[3] enrolled approximately 25 percent of the students in the preparatory cycle. These schools either affiliate with the National University or the State universities or else have their credits validated by the Secretariat of Public Education.

With so many agencies involved in the preparatory cycle, a common agreement on the curriculum was necessary. In 1955, the National Association of Universities and Institutes of Higher Education (*Asociación Nacional de Universidades e Institutos de Enseñanza Superior*) urged acceptance of a singe curriculum (*bachillerato único*). Later, with some variation this single curriculum was adopted by all university-connected general preparatory schools and by private preparatory schools whose credits were validated by the Secretariat of Public Education.[4] The curriculum aimed to provide a sound general education, irrespective of career choice, consisting of the following subjects: [5]

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[1] *Excelsior*, Nov. 30, 1965.
[2] Centro de Estudios Educativos. *Boletín Mensual Informativo*, May 1968.
[3] Ibid.

1st year		*2d year*	
Grand total per week	31	*Grand total per week*	31
		Required	
Total hours per week	22	Total hours per week	21
Distributed among English, or French language, philosophy (logic), Spanish language and literature, and universal history.		Distributed among history of universal literature, Mexican and Spanish-American literature, philosophy (ethics), psychology, and a 2-hour seminar which the student chooses from a list that varies from one institution to another.	
		Elective	
Total hours per week	9	Total hours per week	10

The elective subjects covered five areas: Biological sciences, chemical sciences, economics and commerce, engineering, and law and philosophy. They were intended to introduce students to particular professions.

Although the standard length of the preparatory cycle is 2 years, the National Autonomous University of Mexico, for its own dependent general preparatory schools, in 1964 increased the length to 3 years and reduced the number of class hours for each year. The university's purpose was to limit enrollment pressure on its own university courses.

Technical Preparatory

For students planning to pursue higher technical studies, technical preparatory schools offer a 2-year program that combines general education with technical and science courses using shops and laboratories. Students select a group of courses leading to one of three *bachilleratos* (diplomas): (1) Engineering and physical-mathematical sciences, (2) medical-biological science, and (3) social sciences.[6]

Enrollments in technical preparatory schools experienced a growth of 268 percent from 1958 to 1964, or an increase from 6,113 to 16,400 students.[7] A spurt in their enrollment of almost 93 percent occurred between 1964 and 1965 as a reaction against the National University's lengthening of its preparatory cycle from 2 to 3 years, for students in the technical preparatory schools could still earn the *bachillerato* (diploma) in 2 years.

Over 85 percent of all technical preparatory enrollees in 1966 were in Federal schools, with the rest about equally divided between State and private schools.

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[4] **Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–64*, p. 141.**

[5] **Ibid., *Informe*, p. 204.**

[6] **Ibid., *Obra Educativa* . . . etc., p. 140.**

[7] **Ibid., p. 142.**

Terminal Education

The preparatory cycle of secondary education includes not only preparatory schools, either general or technical, but also those providing terminal education. Supported by agencies of the Federal Government, the States, and private sources, these schools teach more than 100 middle-level specializations, which may be grouped according to the four general areas of work to which they lead:

1. Commerce and services.
2. Industry and production of goods.
3. Military and naval service.
4. Teaching of physical education or shop, at the preschool or elementary level.

The development of terminal education in Mexico is in its initial phases. Education for teachers predominates, accounting in 1964 for 64 percent of all students for middle levels; nursing schools accounted for 15 percent; and only 21 percent of the students were pursuing studies toward industrial, service, and technical positions.[8] The number of opportunities for study toward middle-level careers is extremely small in comparison with the growing number of students finishing the first secondary cycle. Shortages of facilities are most acute in the interior. An oversupply of elementary teachers and a scarcity of trained personnel for other occupations point up the need for greater balance between enrollments and manpower needs.

One solution suggested for this imbalance is a greater contribution by the universities toward terminal education in a variety of fields. However, the tendency to think that this type of education lacks academic respectability and social prestige might make participation by the universities ineffective.

Another suggestion is to establish multiple-education centers similar to the one at Pedras Negras, Coahuila. To a Federal school, started in 1939 for the preparatory level of secondary education, were added a nursing school, a pharmacy school, and schools for laboratory technicians, in response to the needs generated by the growth of that particular region. Similar centers could be established around schools of the basic cycle, thus making use of limited economic resources.

ENROLLMENT

Mexican statistical data on secondary education are subject to inadequacies and inaccuracies because of its diversified character, overlapping levels and types of schools, and the multiple agencies that support it.

In 1926, a total of 3,860 students were enrolled in the basic secondary cycle; 20 years later in 1946, a total of 48,376.[9] In 1958 and for 2 selected years later, the basic secondary enrollment (by type of school support) was the following: [10]

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[8] Ibid., *VII Asamblea Nacional Plenaria*, p. 73.

[9] Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1940–1946*, p. 21. For publication details on this and subsequent citations, see Selected Bibliography.

[10] Ibid., *Obra Educativa en el Sexenio 1958–1964* and *Concentración Estadística del Sistema Educativo Mexicano 1967*.

	1958	*1964*	*1967*
Total	*157, 791*	*603, 476*	*862, 951*
Federal	84,679	238,220	395,730
State	62,438	135,543	174,656
Private	110,674	229,713	292,565

The basic cycle's total enrollment more than tripled from 1958 to 1967, with the greatest increase in Federal schools. In 1964, of the 366,000 children who successfully finished elementary school, 77 percent enrolled in secondary school.[11] Pressures on the secondary schools and on Federal and State budgets will undoubtedly grow steadily as the number of secondary school students increases under the Eleven-Year Plan.

During the 6 years 1958–64, enrollment in the preparatory cycle of secondary education almost doubled—from 52,568 to 106,108; [12] and during the 3 years 1964–67, it more than doubled—from 106,108 to 256,126. Following is a breakdown of the preparatory cycle's 1967 enrollment by type of support: [13]

Total	*256, 126*
Federal	83, 468
State	72, 960
National University official	37, 361
Private	62, 337

The 1960 Mexican census showed 3,535,265 adolescents between the ages of 15 and 19, and it is known that this age group has increased markedly since 1960. Considering the 1967 enrollment figures for the basic secondary cycle (862,951) and those for the preparatory cycle (256,126), which total 1,119,077, against even any increase in the 15- to 19-year-old age group by 1967, one can see that only a small part of this group was in school that year, despite secondary education's notable expansion.

PROBLEMS AND RECOMMENDATIONS

Problems

One of the most significant developments in Mexican secondary education is its democratization: It now reaches social classes and geographic areas which it previously excluded. Many problems, however, still hinder growth at the secondary level. Among such problems are those identified below:

1. **Deficiencies in budgets, equipment, plants, and teachers.**
   (Since the advent of the Eleven-Year Plan in 1959, the number of elementary school graduates has increased constantly, and in 1962 the holding power of the basic secondary-cycle schools rose to 93 percent.[14] The backlog of pupils and the occupational demands of an expanding economy have put

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[11] Ibid., *VII Asamblea Nacional Plenaria,* p. 52.
[12] Ibid., p. 65.
[13] Ibid. *Concentración Estadística del Sistema Educativo Mexicano 1967.*
[14] Ibid., *Informe,* p. 208.

pressure on secondary schools. Although efforts have been made to extend secondary education to the small cities of the interior and to Indian regions, the schools still tend to be urban institutions, with a low percentage of working-class students. The specialized nature of secondary schools increases their per-pupil cost, thus hindering their spread.)

2. **Disagreement on curriculum.**
   (Although a plan for a common curriculum—*bachillerato único*—has been in effect since 1956, argument continues as to whether the curriculum should emphasize general or vocational education.)
3. **Imbalance between manpower needs and terminal education.**
   (Most students choose courses that will lead to teaching or nursing, whereas trained employees in other fields are often more necessary in the particular region.)
4. **Lack of adequately prepared teachers.**
   (No special certificate is required for secondary school teachers; most of them work part time and have little or no pedagogical training.)
5. **Lack of administrative unity.**
   (Preparatory schools are administered by a variety of agencies. Some preparatory schools are attached to schools of the basic cycle. All federally maintained schools are not only attached to a basic-cycle school but are operated on the same site. Others are dependents of a university, retaining, however, fiscal and administrative separation. Still another arrangement occurs in the State of Veracruz, where the University of Veracruz has charge of the whole system of secondary education.)

Recommendations

The National Technical Council of Education, after studying developments in secondary education, made specific recommendations for each cycle. Some of the major recommendations were the following: [15]

Basic Cycle

1. At least 80 percent of the graduates of the sixth grade should be accommodated, with public schools absorbing at least 60 percent.
2. Costs should be reduced by holding double sessions, expanding existing plants, and setting up central laboratories and shops to serve surrounding schools.
3. Full- and half-time teachers should be employed, as well as those who work by the hour.
4. Teachers should be prepared to teach several related subjects rather than a single subject.
5. Technical preparation should be intensified without jeopardizing the general education objectives of the basic cycle.

Preparatory Cycle

1. Plans and programs should be revised to continue the basic cycle's general courses and to give specialized introductory courses in the last year only.
2. Unity should be promoted in preparatory education, in accordance with results of experimentation on a national scale.
3. The preparatory and basic cycles should be coordinated into a single unit.
4. The Federal Government should continue to increase the quantity and improve the quality of those schools of the preparatory cycle that function alongside Federal schools of the basic cycle.

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[15] Ibid., *VII Asamblea Nacional Plenaria*, pp. 61–64, 77–78.

5. A highly trained teacher corps should be developed specifically for the secondary level.

Secondary education will continue to receive attention in Mexico because a developing society requires professional and technical skills. More students must be attracted to technical schools which lead to middle-level positions, rather than to general preparatory schools which lead to universities and the professions, even though the latter continues to carry higher prestige in the public mind.

VII.

Higher Education

LEGAL BASIS

Although the Federal Government of Mexico contributes to the support of both public and private universities, it does not control a university system. Public universities are governed by their own special statutes rather than by the Organic Law of Education, which for the most part applies only to the lower educational levels. A public institution, the National Autonomous University of Mexico (*Universidad Nacional Autónoma de México*)[1] operates under special statutes passed by the Federal Congress. Also public, the State universities operate under special statutes passed by the respective State legislatures.

The Organic Law of Education, applying mostly to the lower educational levels, also applies to certain schools deemed to be on the higher education level. Among such schools are those controlled by various departments of the Federal Government. For example, the National Conservatory of Music (*Conservatorio Nacional de Música*) is controlled by the Secretariat of Public Education. Likewise, the Higher Normal School (*Escuela Normal Superior*),[2] which trains teachers for secondary education, is controlled by the same Secretariat.[3]

The laws of *Ejercicio Profesional* (Professional Practice) operating in the various States and the Federal District apply to all institutions granting those degrees which are required for the practice of a profession. These laws have been enacted on the basis of certain requirements in the 1917 Constitution of Mexico (as amended):

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[1] For convenience, commonly referred to in Spanish as the *Universidad Nacional* or by its initials, *U.N.A.M.*; and in English as the National University. The present publication will frequently use only the two English words.

[2] Other normal schools for training secondary school teachers are operated by States and private agencies; in general the curriculums of these schools conform to the Higher Normal School's curriculum. Also, some universities offer training for secondary school teachers and they are free to develop their own curriculums for such training.

[3] The Secretariat of Public Education also controls the National Polytechnical Institute (*Instituto Politécnico Nacional*) to which applies a statute similar to the Organic Law of Education.

> The law in each state shall determine the professions which may be practiced only with a degree and set forth the requirements for obtaining it and the authorities empowered to issue it.[4]
>
> * * * * * * *
>
> . . . no person can legally agree to . . . the temporary or permanent renunciation of the exercise of a given profession . . .[5]

As a result, then, of the constitutional requirements, the laws of *Ejercicio Profesional* specify which professions require a degree for their practice, how the degrees are obtained, and which institutions are authorized to grant them. Authorized professional degrees awarded by any State are valid throughout the whole of Mexico.

FINANCIAL SUPPORT

The Mexican Federal Government is the source of greatest financial support for institutions of higher education. This fact is revealed in the following tabulation: [6]

Source of support	*Amount*		*Percent of increase*
	1959	*1964*	
Federal	$236,297,234	$580,631,421	145.2
State	58,044,206	103,519,044	74.8
Private	45,494,355	103,834,816	128.1

Since the percent of the 5-year increase in the Federal Government's contribution to higher education was so substantial and since reports show that a great share of that contribution went to universities or institutes in large urban areas,[7] the Federal Government appears to have ascribed much importance to higher education in promoting economic development.[8]

COORDINATION

Mexican higher education is a blend of various types of institutions—public and private, university and technical, centralized and decentralized, large and small. Unlike elementary and secondary schools, higher institutions are usually not subject to Federal control. Hence, the problem of coordination at this level is not simple.

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[4] Title 1, ch. I, *Individual Guarantees,* art. 4.

[5] Ibid., art. 5.

[6] Asociación Nacional de Universidades e Institutos de Enseñanza Superior. *La Educación Superior en México en el Régimen del Presidente López Mateos.* app. D, p. 16. For publication details on this and subsequent citations, see Selected Bibliography (app. B).

[7] Such institutions are staffed mainly by part-time faculty and attended largely by part-time students.

[8] Charles Nash Myers. *Education and National Development in Mexico,* p. 102.

All Federal professional and technical institutions are coordinated through the Subsecretariat of Technical and Higher Education, an office created in 1958 within the Secretariat of Public Education.

By cooperative action in 1950 certain universities established the National Association of Universities and Institutes of Higher Education. This organization has expanded since then to cover the majority of higher institutions—including those dependent upon the Federal Government. The association has no legal status, but the Federal Government has helped stimulate its development, considering the association a useful link between the Government and the universities and institutes that are not subordinate to Federal control.

DECENTRALIZED VS. CENTRALIZED INSTITUTIONS

A. PUBLIC EDUCATION

Decentralized

A higher education institution having a decentralized (autonomous) status is a public corporation with academic and administrative self-government guaranteed by law.

Federal.—The outstanding example of a Federal decentralized instituton is the *Universidad Nacional Autónoma de México* (National Autonomous University of Mexico). The other two decentralized Federal institutions are the *Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional* (Center for Research and Advanced Study of the National Polytechnical Institute) and the *Centro Nacional de Enseñanza Técnica Industrial* (National Center for Technical Industrial Education). All are in the Federal District.

State.—Fourteen universities and one institute comprise the group of State decentralized institutions, named below by State:

State	*City*	*Institution*
		Universities
Baja California, Norte.	Mexicali	Universidad Autónoma de Baja California.
Campeche	Campeche	Universidad del Sudeste.[1]
Colima	Colima	Universidad de Colima.
Durango	Durango	Universidad "Juárez" del Estado de Durango.
Guerrero	Chilpancingo	Universidad Autónoma de Guerrero.
Hidalgo	Pachuca	Universidad Autónoma de Hidalgo.
México	Toluca	Universidad Autónoma del Estado de México.
Michoacán	Morelia	Universidad Michoacana de San Nicholás de Hidalgo.
Morelos	Cuernavaca	Universidad de Morelos.
Oaxaca	Oaxaca	Universidad "Benito Juárez" de Oaxaca.
Puebla	Puebla	Universidad Autónoma de Puebla.
Querétaro	Querétaro	Universidad Autónoma de Querétaro.

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[1] **Formerly called Universidad de Campeche.**

State	*City*	*Institution*
		Universities
Tabasco	Villahermosa	Universidad Autónoma "Juárez" de Tabasco.
Zacatecas	Zacatecas	Universidad de Ciencias Autónoma de Zacatecas.
		Institute
Aguascalientes	Aguascalientes	Instituto Autónomo de Ciencias y Tecnología.

Centralized

A higher education institution that is centralized has only limited self-government, certain controls being retained by the Federal Government or a State government.

Federal.—The outstanding examples of Federal centralized institutions are the *Instituto Politécnico Nacional* (National Polytechnical Institute) located in Mexico City and the 12 regional technological institutes. Listed below by State, these 12 institutes are the following:

State	*City*	*Institute*
Coahuila	Saltillo	Instituto Tecnológico Regional de Coahuila.
Chihuahua	Chihuahua	Instituto Tecnológico Regional de Chihuahua.
Do	Ciudad Juárez	Instituto Tecnológico Regional de Ciudad Juárez.
Durango	Durango	Instituto Tecnológico Regional de Durango.
Guanajuato	Celaya	Instituto Tecnológico Regional de Celaya.
Michoacán	Morelia	Instituto Tecnológico Regional de Morelia.
Oaxaca	Oaxaca	Instituto Tecnológico Regional de Oaxaca.
Querétaro	Querétaro	Instituto Tecnológico Regional de Querétaro.
Tamaulipas	Ciudad Madero	Instituto Tecnológico Regional de Ciudad Madero.
Veracruz	Orizaba	Instituto Tecnológico Regional de Orizaba.
Do	Veracruz	Instituto Tecnológico Regional de Veracruz.
Yucatán	Mérida	Instituto Tecnológico Regional de Mérida.

Also in the Federal centralized group are the nine higher normal schools (ch. X, p. 94) and the 12 special-purpose institutions listed below by State:

State	*City*	*Institution*
Distrito Federal	México	Centro Nacional de Enseñanza Técnica Industrial.
Do	do	Escuela de Arte Teatral.
Do	do	Escuela de Diseño y Artensanía.
Do	do	Escuela Médico-Militar.
Do	do	Escuela Militar de Ingenieros.
Do	do	Escuela Nacional de Antropología e Historia.

State	*City*	*Institution*
Distrito Federal	México	Escuela Nacional de Biblioteconomía y Archivonomía.
Do	do	Escuela Normal de Especialización.
Do	do	Escuela Superior de Guerra.
Do	do	Instituto Nacional de Bellas Artes.
Jalisco	Zapopan	Escuela Militar de Aviación.
Veracruz	Veracruz	Heróica Escuela Naval Militar.

State.—Comprising the State centralized institutions are eight universities, three institutes, one preparatory school for law (*Escuela Preparatoria y de Derechos de Ciudad Las Casas*) located in the city of Las Casas (State of Chiapas), and two higher normal schools—*Escuela Normal Superior de Nayarit* (located in Tepic, State of Nayarit) and *Escuela Normal Superior de Puebla* (located in Puebla, State of Puebla).

The eight State centralized universities and three State centralized institutes are named below by State:

State	*City*	*Institution*
		Universities
Coahuila	Saltillo	Universidad de Coahuila.
Chihuahua	Chihuahua	Universidad de Chihuahua.
Guanajuato	Guanajuato	Universidad de Guanajuato.
Jalisco	Guadalajara	Universidad de Guadalajara.
Nuevo León	Monterrey	Universidad de Nuevo León.
Tamaulipas	Ciudad Victoria	Universidad de Tamaulipas.
Veracruz	Jalapa	Universidad Veracruzana.
Yucatán	Mérida	Universidad de Yucatán.
		Institutes
Chiapas	Tuxtla Gutiérrez	Institutos de Ciencias y Letras de Chiapas.
Sonora	Ciudad Obregón	Instituto Tecnológico de Sonora.
Tlaxcala	Tlaxcala	Instituto de Estudios Superiores del Estado de Tlaxcala.

B. PRIVATE EDUCATION

Private institutions offering higher education do not require special Federal authorization as do institutions offering elementary, secondary, or normal (teacher-training) education. For Federal Government or State government validation of its courses and degrees or titles, however, a private higher education institution must do one of four things:

1. Obtain recognition by the Federal Government or by a State government.

or

2. Affiliate with a Federal decentralized institution.

or

3. Affiliate with a State decentralized or centralized institution.

or

4. Acquire the status of a free university school (*escuela universitaria libre*).

The free university schools have greater autonomy than institutions affiliating as in Nos. 2 and 3 above. For example, by fulfilling certain rigid standards such schools may grant their own degrees or titles and develop their programs freely.

Federal or State Recognition

The six private institutions that have obtained Federal recognition for official validation of their courses and degrees or titles are named below by State:

State	*City*	*Institution*
Baja California, Norte.	Mexicali	Centro de Estudios Técnicos y Superiores.
Distrito Federal	México	Escuela Bancaria Comercial.
Do	do	Escuela Normal Superior de la Federación de Escuelas Particulares.
Jalisco	Guadalajara	Escuela Normal Superior "Nueva Galicia."
Nuevo León	Monterrey	Escuela Normal Superior "Labastida."
Sinaloa	Mazatlán	Instituto Cultural de Occidente.

Affiliation With a Federal Decentralized Institution

The seven private institutions that receive Federal validation of their courses and degrees or titles through having affiliated with a Federal decentralized institution [9] are named below by State:

State	*City*	*Institution*
Distrito Federal	México	Escuela de Contaduría Pública y Administración de la Institución "Harvard."
Do	do	Universidad Iberoamericana.
Do	do	Universidad La Salle.
Do	do	Universidad Militar Latino-Americana.
Do	do	Universidad Motolinía.
Jalisco	Guadalajara	Universidad Autónoma de Guadalajara.
Nuevo Léon	Monterrey	Universidad "Labastida."

Affiliation With a State Decentralized or Centralized Institution

For State validation of courses and degrees or titles, one private institution has affiliated with a State decentralized institution and five private institutions have each affiliated with a State centralized institution. These affiliating institutions are shown below by State:

State (and City)	*Institution*	*Affiliated with—*
	A. Decentralized	
Nuevo León (Monterrey)	Colegio Franco-Mexicano	Universidad Autónoma de Puebla (located in Puebla, State of Puebla).

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[9] All seven are affiliated with the Federal decentralized Universidad Nacional Autónoma de México (in México, Distrito Federal).

State (and City)	*Institution*	*Affiliated with—*
	B. Centralized	
Coahuila (Monclova)	Escuela de Ingenería Mecánica	Universidad de Coahuila (located in Coahuila, State of Coahuila).
Coahuila (Torreón)	Escuela de Odontología	Universidad de Coahuila (located in Coahuila, State of Coahuila).
Chihuahua (Chihuahua)	Escuela de Filosofía y Letras	Universidad de Chihuahua (located in Chihuahua, State of Chihuahua).
Guanajuato (León)	Escuela Comercial Bancaria	Universidad de Guanajuato (located in León, State of Guanajuato).
Tamaulipas (Tampico)	Escuela de Comercio y Administración	Universidad de Tamaulipas (located in Tampico, State of Tamaulipas).

Free University School Status

Six institutions have each acquired the status of a free university school (*escuela universitaria libre,*) and are thus entitled to Federal validation of their courses and degrees or titles. By State, these six institutions appear below:

State	*City*	*Institution*
Distrito Federal	México	El Colegio de México.[1]
Do.	do.	Escuela Libre de Derecho.
Do.	do.	Escuela Libre de Homeopatía de México.
Do.	do.	Instituto de Ciencias Sociales, Económicas y Administrativas.
Do.	do.	Instituto Tecnológico Autónomo de México.
Nuevo León	Monterrey	Instituto Tecnológico y de Estudios Superiores de Monterrey.

[1] **For a description of this institution's history, curriculum, etc., see p. 74. El Colegio de México, incidentally, is not to be confused with either El Colegio Nacional (p. 105) or Mexico City College, a division of the University of the Americas (p. 70).**

ENROLLMENT

In 1964, a total of 80 public and private higher education institutions surveyed by the National Association of Universities and Institutes of Higher Education[10] had the combined total enrollments for 49 public and 31 private institutions shown below alongside their corresponding 1958 enrollments:

	1964	*1958*
Total	*116,628*	*71,524*
Public	99,216	64,167
Private	17,412	7,357

By the end of the 6 years, enrollment in the private institutions had more than doubled, but that in the public institutions still accounted for about 85 percent of the total.

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[10] **See app. A.**

Universities

University enrollments span a great range, from that of the National University (in Mexico, Federal District) to that of the University of Campeche[11] (in Campeche, State of Campeche): in 1964, a total of 42,056 for the former (its *facultades* and national schools) and 69 for the latter. In between these extremes lie the two next largest public and the two largest private universities. Their combined 1964 enrollment of 16,814, however, was only approximately 40 percent of the 42,056 enrollment that year in National's *facultades* and national schools, noted above. The individual enrollments in the four smaller universities were as follows:

Enrollment	*Institution*	*State*	*City*
	Public		
6,327	Universidad de Nuevo León...	Nuevo León........	Monterrey.
5,324	Universidad de Guadalajara...	Jalisco.............	Guadalajara.
	Private		
3,028	Universidad Iberoamericana..	Distrito Federal.....	México.
2,135	Universidad Autónoma de Guadalajara.	Jalisco.............	Guadalajara.

Institutes

The higher-education level enrollments in institutes also cover a wide range. For example, in 1964 the nine professional schools (higher education level) of the *Instituto Politécnico Nacional* (National Polytechnical Institute), located in Mexico City and operating as a dependency of the Secretariat of Public Education, enrolled 11,853 students. At the other end of the scale, several small public institutes each enrolled fewer than 100 at the higher education level. The largest private institute, the *Instituto Tecnológico y de Estudios Superiores de Monterrey* (Institute of Technology and Higher Education of Monterrey) in the State of Nuevo León, enrolled 3,268 students in 1964.[12]

Specialized Fields

By specialization, from 1958–59 to 1963–64, the largest enrollments appeared in engineering, accounting and administration, medicine, and law, in that order (table 7). Library science, physical and mathematical sciences, and education showed the largest percent increases in enrollment: 305.7, 217.9, and 206.4, respectively.

A continuing problem that plagues the need for economic growth is that of encouraging specialization in those areas most urgently requiring specialists for such a growth rather than in law or liberal arts. Increasingly evident since 1940, however, a shift has occurred away from the traditional disciplines and into business and engineering.

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[11] Now called Southeast University (*Universidad del Sudeste*).

[12] Both the National Polytechnical Institute and the Institute in Monterrey are affiliated with National University.

Table 7.—Number of higher education students, by course: 1959–64; and percent of increase in each course for the period

[------- indicates the source did not give any figures]

Course	Number of students						Increase for the period	
	1959	1960	1961	1962	1963	1964	Number	Percent
Total	**71,524**	**78,787**	**88,202**	**100,519**	**110,378**	**116,628**	**45,104**	**63.1**
Accounting and administration	11,488	12,396	14,914	18,798	22,393	23,706	12,218	106.4
Agriculture and animal husbandry	746	845	989	1,106	1,223	1,491	745	99.9
Anthropology	213	170	292	322	297	290	77	36.2
Architecture	4,968	5,288	6,174	6,647	7,120	7,210	2,242	41.1
Biological sciences	637	766	1,000	905	1,004	1,185	548	86.0
Chemical sciences	2,140	2,062	2,434	2,661	2,690	2,820	680	31.8
Dentistry	1,432	1,716	1,967	2,214	2,410	2,597	1,165	81.4
Economics	1,807	2,253	2,580	3,077	3,735	4,078	2,271	125.7
Education	171	219	314	431	570	524	353	206.4
Engineering[1]	18,256	19,534	20,875	23,260	25,021	26,377	8,121	44.5
Law	9,518	10,812	11,613	13,239	14,382	15,229	5,711	60.4
Letters	390	595	691	715	849	964	574	147.2
Library science	35	32	42	63	94	142	107	305.7
Medicine	12,903	13,550	14,137	15,307	16,740	16,092	3,189	24.7
Oceanology	-------	-------	-------	7	23	34	34	-------
Philosophy	194	254	271	381	485	525	331	170.6
Physical and mathematical sciences	441	543	696	797	976	1,402	961	217.9
Political and social sciences	547	565	654	722	767	957	410	75.0
Psychology	604	731	1,054	1,222	1,330	1,412	817	135.3
Veterinary medicine	791	1,103	1,331	1,527	1,694	1,779	988	124.9

[1] Engineering includes all its usual branches, as well as chemical engineering. The enrollment figures for agricultural engineering, however, are absorbed in those for agriculture and animal husbandry.

SOURCE OF DATA: Asociación Nacional de Universidades e Institutos de Enseñanza Superior. *La Educación Superior en México en el Régimen del Presidente López Mateos.* Apéndice C, Cuadro No. 1 (Higher Education in Mexico During the Regime of President López Mateos. app. C, table 1). México, D.F.: The Asociación, November 1964.

Imbalance: Urban vs. Rural

The Federal District has 24 higher education institutions, the greatest number of any Federal entity in Mexico.[13] The State of Nuevo León is second with five, and the States of Chiapas and Tlaxcala each have one small institute. With 70,772 students in its 24 institutions, the Federal District had more than 60 percent of the 1964–65 enrollment in the country's 80 higher education institutions (table 7).

Although enrollment in higher education grew faster outside than inside the Federal District from 1958 to 1964, the continuing imbalance of educational facilities between urban and rural areas is a matter of concern. Higher education facilities are naturally concentrated in large urban areas like Mexico City, Monterrey, and Guadalajara, which offer jobs for students who need work and professional manpower for universities which require part-time faculty. Locating institutions in rural areas entails the greater cost of providing dormitory facilities and full-time faculty. The net effect is that areas already the most advanced in educational and economic offerings become more so, and thus the gap between urban and rural areas widens.

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[13] See app. A.

THE NATIONAL AUTONOMOUS UNIVERSITY OF MEXICO

Historical Development

At present the largest university by far in Mexico (and one of the largest universities in the world), the National Autonomous University of Mexico was founded in 1551 by royal decree as the Royal and Pontifical University of Mexico (*Real y Pontifica Universidad de México*). The most advanced and cultured institution of New Spain, it was a source of great pride to the viceroyalty throughout the colonial period. After Mexican Independence in 1821 came a period of general political turbulence; from 1833 to 1865 the university was suppressed and revived four times and again was suppressed by Emperor Maximilian in 1865.

In 1910, as a result of leadership by Justo Sierra,[14] President Porfirio Díaz decreed the institution's restoration and its renaming as the National University. Long associated with conservative forces, it came into conflict with the ideology of the Mexican Revolution. José Vasconcelos' [15] election as rector of National University in 1920 effected a measure of harmony between the government and the university. Later, the friction increased again, finally culminating in a 1929 Federal law granting the university autonomy and officially changing its name to the National Autonomous University of Mexico.

In 1945, the Organic Law of the National University was passed, revising all previous laws affecting it. This law is still in force. In the same year a law was passed to establish and construct the *Ciudad Universitaria* (University City). In 1946 another law provided for the expropriation of land on which to build University City. The site, in the Pedregal, a few miles south of Mexico City, was officially inaugurated by the university in 1952.

Built on lava-covered wasteland, the National University, with its ultramodern, functional architecture skillfully blended into the natural setting, has become an educational showplace—a symbol of modern Mexico. University City is a magnificent creation and a far cry from the antiquated, congested, downtown quarters in which the institution was housed for centuries. Murals by some of Mexico's outstanding artists provide both beauty and instructive excursions into the country's past.

Enrollment

In 1964, National University's overall enrollment (covering everything—*facultades,* institutes, preparatory schools, national schools, School of Music, School of Plastic Arts, and School of Nursing and Obstetrics) reached 74,000. Of this overall total, 42,056 were in the *facultades* and national schools (table 8).

Career choices are responding to changing manpower needs, as can be seen by a comparison of enrollments for the school years 1958–59 and 1963–64 (table 8). Despite a slight decline in 1963–64, the *Facultad* of Medicine had the largest enrollment in both these years. Next in size came the *Facultad* of Engineering, which gained more than 500 students. The *Facultad* of Sciences more than doubled its enrollment as did the National School of Economics. The National School of Commerce and Administration gained over 2,400.

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[14] **Secretary of Mexico's first cabinet-status office to handle national educational affairs.**

[15] **The next year, 1921, Vasconcelos was appointed Secretary of Education, the first one under the 1917 Constitution of Mexico. See ch. II, p. 21.**

Table 8.—Number of students in the *facultades* and schools of the National Autonomous University of Mexico: 1959 and 1964

Facultad or national school	1959	1964
Total	**33,264**	**42,056**
Facultad		
Total	*20,710*	*23,909*
Engineering	6,077	6,591
Law	5,339	6,168
Medicine	7,313	7,078
Philosophy and letters	1,238	2,432
Sciences	743	1,640
National school		
Total	*12,554*	*18,147*
Architecture	3,145	3,750
Chemical sciences	2,499	2,446
Commerce and administration	3,638	6,065
Dentistry	734	1,258
Economics	1,274	2,629
Political and social sciences	516	866
Veterinary medicine and zootecnics	748	1,133

SOURCE OF DATA: Asociación Nacional de Universidades e Institutos de Enseñanza Superior. *La Educación Superior en México en el Régimen del Presidente López Mateos* (Apéndice C, Cuadro No. 2). (Higher Education in Mexico During the Regime of President López Mateos—appendix C, table 2). México, D.F.: The Asociación, November 1964.

Summer School

National University's summer school was organized over 40 years ago, primarily to offer students from other countries courses in the Spanish language and in the art, cultural traditions, economy, and history of Mexico and other Latin American countries. Later, to extend courses throughout the year, the summer school was reorganized as the *Dirección de Cursos Temporales* (Administration of Seasonal Courses). With an expanded curriculum, the *Dirección* has four sessions per year: summer (June through August), autumn (September through November), winter (January through March), and spring (March through June).

Objectives

National University is a decentralized institution, a public corporation whose objectives are to—

1. Prepare professional people, researchers, university professors, and technicians who will be useful to society.
2. Organize and carry out research, principally on national conditions and problems.
3. Extend the benefits of the national culture as widely as possible.

Administration

The university government consists of the following:

1. The Governing Council (*La Junta de Gobierno*).
2. The University Board (*El Consejo Universitario*).

3. The Rector (*El Rector*).
4. The Administrator of University Property and Financial Resources (*El Patronato*).
5. Directors of *facultades,* schools, and institutes.
6. The Technical Boards of *facultades,* schools, and institutes (*Los Consejos Técnicos*).

Academic Structure

Teaching is the function of the *facultades* and the schools. The term *facultad* has no exact equivalent in English. It refers to an academic unit qualified to award in particular fields the *licenciados* (professional titles) and, most important, the advanced degrees of master or doctor. The *escuelas* (schools) can award only *licenciados.* In 1965 National University had five *facultades* and 10 *escuelas.*

Research Institutes

National University's research functions are carried out mainly through its institutes. With eight devoted to humanities and 11 to sciences, these institutes are the following:

Humanities

Center of Literary Studies (part of the *Facultad* of Philosophy and Letters).
Center of Philosophical Studies.
Hemeroteca Nacional (the periodical and newspaper section of the National Library).
Institute of Esthetic Research.
Institute of Comparative Law.
Institute of Economics Research (part of the National School of Economics).
Institute of Social Research.
National Library.

Sciences

Electronic Computing Center (part of the Technical Council of Scientific Research).
Institute of Biology.
Institute of Chemistry.
Institute of Engineering (part of the *Facultad* of Engineering).
Institute of Geography.
Institute of Geology.
Institute of Geophysics.
Institute of Mathematics.
Institute of Medical and Biological Studies.
Institute of Physics.
National Astronomical University.

Unlike the largely part-time staff of the professional schools, most institute researchers work full time. The results of their research, most of which concentrates on national problems, are published in institute bulletins, periodicals, or yearbooks.

Diffusion of Culture

By law, National University is responsible for diffusing culture as widely as possible. It meets this obligation in part by means of its numerous publications, which in the biennium 1961–62 averaged 54.5 million pages per year. Information about university activities and the policies formulated by the

University Council (*Consejo Universitario*) is disseminated through the University Gazette (*Gaceta Universitaria*). The university also maintains a radio station, which since 1961 has broadcast selected programs 16 hours a day; and it has authorization for a television channel.

Further, the university has prepared a series of phonograph records, the *Voz Viva de México* (Living Voice of Mexico), composed of readings from historical documents, Indian and other literature, and presidential speeches.

The *facultades* and schools organize short courses and conferences. The university frequently participates in or hosts national and international conferences and provides musical concerts free or at modest prices, especially on festive occasions.

A unique method for extending the university's influence is the requirement that during the year before receiving their degrees or titles students must spend 6 months in social service. For example, the prospective doctor must reside in a small community, using his skills to improve its sanitary conditions and to care for the health needs of its inhabitants, who too often have placed their lives in the hands of witch doctors. The prospective doctors' reports of their social service experience frequently offer penetrating insights not only into primitive medicine but also into a primitive culture as a whole.

STATE UNIVERSITIES

Although similar in academic structure (patterned after that of the National University), State universities differ in age, enrollment size, and growth rate. Like the Autonomous University of Puebla, some can trace their origins to the colonial period; others, like the Autonomous University of Lower California, have been established within the past several years. In enrollment size, State universities range from the University of Nuevo León, with 6,327 students in 1964–65, to the University of Campeche,[16] with 69 that year.

Since 1958–59, the growth rate has more than doubled in 14 State universities, listed below by State:

State	*City*	*University*
Coahuila	Saltillo	Universidad de Coahuila.
Chihuahua	Chihuahua	Universidad de Chihuahua.
Durango	Durango	Universidad "Juárez" del Estado de Durango.
Guerrero	Chilpancingo	Universidad Autónoma de Guerrero
Hidalgo	Pachuca	Universidad Autónoma de Hidalgo
México	Toluca	Universidad Autónoma del Estado de México.
Michoacán	Morelia	Universidad Michoacana de San Nicholás de Hidalgo.
Morelos	Cuernavaca	Universidad de Morelos.
San Luis Potosí	San Luis Potosí	Universidad Autónoma de San Luis Potosí.

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[16] **Now called Southeast University (*Universidad del Sudeste*).**

State	*City*	*University*
Sinaloa	Culiacán	Universidad Autónoma de Sinaloa.
Sonora	Hermosillo	Universidad de Sonora.
Tabasco	Villahermosa	Universidad Autónoma "Juárez" de Tabasco.
Tamaulipas	Ciudad Victoria	Universidad de Tamaulipas.
Veracruz	Jalapa	Universidad Veracruzana.

Also since 1958–59, the growth rate has been less than double, but nevertheless substantial, in three State universities, listed below by State:

State	*City*	*University*
Jalisco	Guadalajara	Universidad de Guadalajara.
Nuevo León	Monterrey	Universidad de Nuevo León.
Puebla	Puebla	Universidad Autónoma de Puebla.

Inadequate financial resources create a problem common to the Mexican State universities. This problem is compounded by ever-increasing enrollment pressures on them that stem partly from National University's general policy of not admitting an applicant from a Mexican State if he can obtain a comparable course at a higher education institution in his own State. In an effort to ease the State university's financial problems, therefore, the Federal Government's further policy is to channel more Federal support into these universities than previously.

PRIVATE UNIVERSITIES

In 1964 Mexico had eight private universities, listed below in order of enrollment size for that year and compared with enrollment size for 1958:

Enrollment				
1964	*1958*	*University*	*State*	*City*
3,028	1,619	Universidad Iberoamericana.	Distrito Federal	México.
2,135	1,053	Universidad Autónoma de Guadalajara.	Jalisco	Guadalajara.
842	(1)	Universidad La Salle	Distrito Federal	México.
170	61	Universidad "Labastida"	Nuevo León	Monterrey.
101	88	Universidad Motolonía	Distrito Federal	México.
79	19	Universidad Feminina de México.	Do	Do.
[2] 43	(3)	Universidad Militar Latinoamericana.	Do	Do.
19	44	Universidad Feminina de Puebla.	Puebla	Puebla.

[1] University did not exist in 1958–59.
[2] Enrollment figure is for 1963.
[3] Source did not give any figures.

Except for the *Universidad Feminina de Puebla,* all these private universities are affiliated with the public National University. Setting minimum standards, National checks on their compliance through an inspection system.

The two largest, Iberoamericana and Guadalajara, grew remarkably from 1958 to 1964; they both have ambitious plans for the future. Guadalajara has charted a long-range development program [17] to expand research, upgrade the teaching staff, and establish institutes to teach the basic professional subjects. To achieve these goals, the university has actively sought cooperation from U.S. universities and support from foundations and other private sources.

Established in 1943, Iberoamericana offers training recognized by the National University in 15 professions and other training recognized directly by the Secretariat of Public Education in three other professons.[18] Since 1962 the university has occupied a spacious new campus in the southwest section of Mexico City. Supported from private funds, it has new, functional, and well-equipped buildings.

A ninth private university is operating in Mexico but not as part of the Mexican higher education system. This institution is the University of the Americas, founded in 1940 as Mexico City College. In 1963, with a change in name, the university was reorganized into three divisions: College of Arts and Sciences, Graduate School, and Mexico City College. It offers three degrees: Bachelor of arts, master of fine arts, and master of business administration. The university's average quarterly enrollment is about 1,000, and it cooperates with U.S. institutions in promoting a junior year in Mexico.

The University of the Americas has another link with U.S. higher education through its membership in the Association of Texas Colleges and its accreditation by the Southern Association of Colleges and Schools.

THE NATIONAL POLYTECHNICAL INSTITUTE

After the National University, the next largest institution of higher education in Mexico is the National Polytechnical Institute (*Instituto Politécnico Nacional*), a dependency of the Secretariat of Public Education. It is the capstone of Mexico's system of technical education.

Historical Development

The beginnings of technical education in Mexico can be traced to the 16th century, but it received its real impetus from the social changes after the Revolution of 1910. Schools of commerce and administration, industrial chemistry, and mechanical and electrical engineering were in operation by 1917.

In 1923 the Federal Department of Technical, Industrial, and Commercial Instruction was created to reorganize the institutions offering this type of instruction. Fourteen years later in 1937 President Cárdenas ordered that the National Polytechnical Institute be established as a dependency of the Secretariat of Public Education and that its objectives should be to—

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[17] Universidad Autonoma de Guadalajara. *Development Program.*

[18] Universidad Iberoamericana. *Catálogo General 1965*, p. 11.

1. Prepare professional and technical specialists in areas required by industrial production.
2. Train technicians at the subprofessional level, and also workers for various branches of the agricultural and industrial economy.
3. Encourage scientific and technological research in industrial development and wise use of natural resources.
4. Create schools and centers of scientific and technological study and research, as needed.

In operation for only 32 years now (counting up to 1969), the National Polytechnical Institute has experienced a remarkable development. As a dependency of the Federal Government it can be expected to respond to changing manpower needs and to Government programs of economic expansion. Compared with National University, the Institute draws a greater percentage of students from families of modest means. As in National University, before students can graduate they must spend a period of social service (*servicio social*)—a requirement forcefully reminding them of their obligation to the society that has subsidized their education. An expanding, industrialized economy, with its constantly growing demand for technically trained manpower, assures the institute a continuing position of central importance.

Levels of Instruction

The National Polytechnical Institute offers higher education at three levels: (1) Undergraduate, leading to the *licenciado;* (2) postgraduate, leading to the master's or doctor's degree; and (3) research (either scientific or technological), carried on at the institute's Center for Research and Advanced Studies (*Centro de Investigaciones y Estudios Avanzados*) and at the National Computer Center (*Centro Nacional de Cálculo*). The institute also maintains numerous technical and general preparatory schools at the secondary level.

Professional Schools

In 1964 the National Polytechnical Institute had nine professional schools operating in Mexico City:

Escuela Nacional de Ciencias Biológicas.	(National School of Biological Sciences.)
Escuela Superior de Comercio y Administración.	(Higher School of Commerce and Administration.)
Escuela Superior de Economía.	(Higher School of Economics.)
Escuela Superior de Física y Matemáticas.	(Higher School of Physics and Mathematics.)
Escuela Superior de Ingeniería Mecánica y Eléctrica.	(Higher School of Mechanical and Electrical Engineering.)
Escuela Superior de Ingeniería Químicas y Industrias Extractivas.	(Higher School of Chemical Engineering and Extractive Industries.)

Escuela Superior de Ingeniería Textil.	(Higher School of Textile Engineering.)
Escuela Superior de Ingeniería y Arquitectura.	(Higher School of Engineering and Architecture.)
Escuela Superior de Medicina Rural.	(Higher School of Rural Medicine.)

Enrollment

On September 1, 1965, President Díaz Ordaz reported to the Congress that the overall enrollment at National Polytechnical (including that of its numerous secondary-level technical and general preparatory schools) had reached 53,396, an increase of 8,000 over the figure on September 1, 1964.

In 1964 the institute's nine professional schools alone had 11,853 students, as compared with 7,741 in 1958 (table 9). Both years, most students were in some engineering course; but the accounting course, with 2,800, in 1964 had the largest enrollment of all courses—more than the combined enrollments of the two most popular engineering courses, mechanical and electrical.

Table 9.—Number of students in 23 selected courses at National Polytechnical Institute: 1958 and 1964

Course	1958	1964
Grand total	**7,741**	**11,853**
Engineering		
Total	*5,129*	*7,579*
Aeronautical	78	126
Architectural	528	833
Bacteriological and parasitological	128	247
Biochemical	171	272
Civil	438	575
Communications and electronics	382	1,172
Electrical	869	1,185
Geological	143	66
Industrial chemical	735	1,106
Mechanical	968	1,517
Metallurgical	166	42
Petroleum	142	150
Petroleum chemical	133	52
Spinning and weaving	98	147
Textile (finished products)	36	23
Textile design	32	10
Topographic and hydraulic	82	56
Other		
Total	*2,612*	*4,274*
Accounting	1,986	2,800
Biology	33	122
Economics	140	530
Optometry	24	101
Pharmaceutical industrial chemistry	47	104
Surgical and obstetrical medicine	382	617

SOURCE OF DATA: Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–1964* (Educational Accomplishments in the Six-Year Period 1958–1964). México, D.F.: The Secretaría, 1964, pp. 176–79.

Recent Institute Developments

Although the institute has been operating only since 1937, it has developed significantly through the addition of its professional unit, graduate school, Center for Research and Advanced Studies, and National Computer Center.

The professional unit brings together on a modern, functional campus at the northern perimeter of Mexico City, the following five of the institute's nine professional schools: Chemical engineering and extractive industries, engineering and architecture, mechanical and electrical engineering, physics and mathematics, and textile engineering.

Started in 1963, the graduate school fixes norms and standards for graduate study at the professional schools. In 1964, a total of 242 graduate students were studying for master's or doctor's degrees.

Established in 1961, the Center for Research and Advanced Studies (*Centro de Investigaciones y Estudios Avanzados*) conducts research in science and technology and seeks to raise the national level of higher technical education by preparing researchers and professors for employment throughout the country. The center has its own corporate entity and its own property administered by a foundation. Financial support has come from a number of non-Mexican sources, including The Ford Foundation and the U.S. Public Health Service.

The National Computer Center (*Centro Nacional de Cálculo*) was established in 1963 to stimulate scientific and technological research. Available to both public and private agencies, its services include training workers in the use of electronic equipment. In collaboration with other institutions, the center offers master's and doctor's degrees in sciences.

In 1959 the institute established a *Patronato de Talleres, Laboratorios y Equipos* (Foundation for Shops, Laboratories, and Equipment). It has also established a similar foundation to upgrade the training of professors of technical studies and has expanded its offerings on the television channel which it operates.

PRIVATE INSTITUTES

Of the several private institutes in Mexico, two have achieved particular eminence in their own spheres of higher education. They differ widely in size and purpose.

Institute of Technology and Higher Education of Monterrey

Founded in 1943 to help meet a growing need for professionally trained leaders, the *Instituto Tecnológico y de Estudios Superiores de Monterrey* (I.T.E.S.M.) is private and nonprofit. Twenty years later it had acquired a 40-hectare campus, a curriculum leading to 22 professional careers, a 100,000-volume library, an investment of over 100 million pesos, and (by Presidential decree in 1952) the status of a free university school (*escuela libre universitaria*).[19] The institute is a member of the U.S. organization, Southern Association of Colleges and Schools, and, like University of the Americas in Mexico City (p. 70), of another U.S. organization, the Association of Texas Colleges.

The institute offers higher education in five professional schools. Enrollment growth in each of the five is shown in the following tabulation: [20]

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[19] For an explanation of free university schools, see p. 62.

[20] Asociación Nacional de Universidades e Institutos de Enseñanza Superior. Op. cit., p. 12

	1958–59	*1964–65*
Total	2,011	3,268
Accounting, economics, and administration	480	1,225
Agriculture and cattle raising	183	258
Engineering	1,273	1,630
Letters		57
Sciences	75	88

Courses range from six to 10 semesters. Requiring two semesters and leading to the master's degree, graduate programs are offered in several fields.

Most of the I.T.E.S.M. faculty are full-time, and the ratio of faculty to students is 1:20. More than 70 percent of the students come from outside the city of Monterrey. Many of these non-Monterrey residents are from Latin American countries other than Mexico and have scholarships from their governments; others are from the United States. Among the latter have been engineering students sponsored by the Carnegie Foundation and coming from Case Institute and the University of Wisconsin.

By Mexican standards, the institute's tuition is high, but scholarships and loans are available to needy students. In addition to its professional schools the institute also conducts middle-level technical schools, a preparatory school, a summer school, and extension services.

The College of Mexico

Founded in 1939, *El Colegio de México* ranks low in enrollment (70 students in 1964–65) but high in prestige. It is dedicated to higher education and research in the humanities and social sciences, and as a private institute is supported by its own funds and by subsidies from public and private sources. The college consists of four centers: Economic and Demographic Studies, Historical Studies, International Studies, and Linguistic and Literary Studies.

Offering the licentiate, master's, and doctor's degrees, *El Colegio de México* gives preference to applicants who know two or more foreign languages. It is highly selective also of its faculty, which consists of specialists from Mexico and abroad. Its library contains more than 30,000 books and receives about 400 specialized periodicals. The college provides certain free courses and lectures for the public.

OTHER INSTITUTIONS OF HIGHER LEARNING

Notable among institutions offering courses commonly regarded as on the higher education level but not previously named in the present publication are the 10, all in Mexico City, whose names appear below:

Centro de Estudios Monetarios Latinoamericanos (CEMLA).	(Center for Latin American Monetary Studies.)
Centro Interamericano de Estudios de Seguridad Social.	(Interamerican Center for Social Security Studies.)

Centro Regional de Educación Fundamental para el Desarrollo de la Comunidad en América Latina (CREFAL).	(Regional Fundamental Education Center for Community Development in Latin America.)
Cursos de Medicina Física y Rehabilitación de los Ferrocarriles Nacionales de México.	(The National Mexican Railroads' Courses in Physical Medicine and Rehabilitation.)
Dirección de Educación Professional en Salud Pública.	(Administration for Professional Education in Public Health.)
Escuela de Ingeniería Municipal.	(School of Municipal Engineering.)
Instituto Mexicano de la Audición y el Lenguaje.	(Mexican Institute of Hearing and Speech.)
Instituto Nacional de Cardiología.	(National Institute of Cardiology.)
Instituto Panamericano de Ciencias de la Educación.	(Panamerican Institute of Educational Sciences.)

PROBLEMS, PROGRESS, AND RECOMMENDATIONS: 1958–64

The 1964 report of the National Technical Council of Education summarized the chief problems of Mexican higher education in 1958, assessed the progress toward their solution from 1958 to 1964, and made recommendations.

Problems

Five of the chief problems summarized in the council's report were the following:

1. **Concentration in the Federal District.**
   (The concentration is dangerous, resulting in higher education deficiencies in the States and a growing imbalance between the demand for higher education and available facilities.)
2. **Coordination and unification of public and private action.**
   (A nationwide legal arrangement is lacking.)
3. **Economic insufficiency.**
   (Both public and private resources are insufficient to meet the need for laboratories, libraries, shops, sports facilities, auxiliary services, and functionally designed buildings.)
4. **Teacher deficiencies.**
   (Both the number of teachers and their quality are low, and among the institutions there is only limited interchange of faculty, information, and services.)
5. **Traditional studies versus scientific and technological studies.**
   (Too many students and too many institutions prefer the traditional studies over the scientific and technological studies that are more relevant to national development.)

Progress

The council's report described significant gains concerning four of the five chief problems:

1. **Concentration in the Federal District.**
   (In 1958–59, of the 66,405 students at higher education institutions, 69.3 percent at the higher education level and 54.0 percent at the preparatory level were in the Federal District. In 1964–65, although enrollment had increased

at both levels, the percents had fallen to 60.8 and 49.1 percent, respectively.)

2. **Economic insufficiency.**
   (From 1958–59 to 1964–65, Federal contributions to higher education increased over 145 percent; State contributions, about 75 percent; private contributions, an estimated 128 percent.)
3. **Teacher deficiencies.**
   (Teacher preparation for higher education was notably improved with more graduate and research programs, more scholarships, and more full-time professors.)
4. **Traditional studies versus scientific and technological studies.**
   (In an effort to diversify higher education to make it more relevant to national development, the National Polytechnical Institute, the regional technological institutes, and the industrial technological schools broadened and strengthened their teaching and research facilities; and the universities emphasized nontraditional disciplines.)

Recommendations

Some of the council's principal recommendations for higher education were the following:

1. Expansion and decentralization of higher education through strengthening it in the States.
2. Financial support direct from large-scale business and industrial enterprises.
3. Research related to Mexico's finances, human resources, and priority needs.
4. Scholarships abroad for college professors to encourage their further training.
5. Work opportunities for students through helping them in research and teaching.

TRENDS: 1966–68

In 1966, a total of 83 institutions holding membership in the National Association of Universities and Higher Institutes offered higher education. By type of institution and control, they were the following: [21]

	Total	*Public*	*Private*
Total	*83*	*53*	*30*
Universities	33	25	8
Institutes	20	13	7
Higher schools	25	13	12
Centers or institutes	5	2	3

Enrollment

These 83 institutions had a total 1966 enrollment of 182,414, of whom 84.6 percent were in public institutions and 15.4 percent in private. The 83 institutions among them offered a total of 44 specializations (*carreras*).

From 1959 to 1966, higher education as a whole achieved a better balance between its Federal District enrollments and those in the States, for the percent in the former dropped from 67.7 in 1959 to 53.1 in 1966.

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[21] Asociación Nacional de Universidades e Institutos de Enseñanza Superior. *La Educación Superior en México, 1966.*

Among the 44 specializations, eight are listed below to compare the percents their enrollments constituted of all specialization enrollments in 1966 with the corresponding percents in 1959. Five percents increased, two decreased, and one remained the same:

Specialization	*Percent*	
	1959	*1966*
Architecture	2.7	5.8
Commerce	14.3	17.3
Economics	2.9	4.6
Engineering	27.3	24.0
Humanities	3.3	4.5
Law	14.6	14.6
Medicine	19.7	14.9
Odontology	2.2	2.7

Finances

For many years to come, one of Mexico's most acute educational problems will be how to finance higher education with its burgeoning enrollments. The burden on the Federal Government and the State governments is growing and they have not yet found a workable formula for tapping the private sector to help share the burden. In 1966, President Díaz Ordaz proposed that the public and private sectors join together to set up some kind of working partnerships in income-producing ventures whose profits would be diverted to support universities. Although the universities supply the professional leaders whom business and industry quickly absorb, a defensible method for mobilizing the resources of the latter two to help the universities still has to be evolved.

Reforms

Student protest activities beginning in July 1968 sparked a vigorous demand on the part of students, newspapers, and public officials for a thorough study of youth's problems, including those of higher education and its relationship to society at large.

The *Centro de Estudios Educativos* (Center for Educational Studies), a private research organization, has proposed an 8-point program as a complement to the proposals of the Commission on Integral Planning (ch. III, p. 32) for sweeping reforms at all educational levels that would produce a new kind of Mexican—one "capable of thinking and planning." The center's 8-point program may be summarized as follows: [22]

1. **Accreditation of courses.**
   (To guarantee the quality of courses, establish systems for accrediting them.)
2. **Communication media.**
   (Investigate the present communication media and their relevancy to education.)
3. **Institutes for Educational Experiment.**
   (Find resources to establish and support institutes for such a purpose.)

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[22] *Excelsior.* Oct. 14, 1968.

4. **National Service for Education.**
   (Establish such a service to be composed of students outside the professional schools and to be modeled along the lines of social service required of the professional school students.)
5. **Regional social problems.**
   (Coordinate the study of social problems in each region with the plan for reforming its universities.)
6. **Schools of Education.**
   (As a means for stimulating general educational reform, establish schools of education in the universities.)
7. **The Secretariat of Public Education.**
   (Reform the Secretariat's administrative organization.)
8. **Values of education.**
   (Intensify efforts to arouse the public as to the values of education.)

In the opinion of the Center for Educational Studies, most of the responsibility for the proposed educational reforms lies with the universities. In the past, educational planning has lacked objective research to undergird it and to evaluate results. If adequately financed and properly staffed for the task, universities and their schools of education, since they are not controlled by the Government, would be in a strategic position to accept the responsibility and to undertake to fill the vacuum with truly objective research.

VIII.

Literacy Training and Fundamental Education

Nonformal education (*educación extraescolar*) includes literacy training, cultural missions, Indian education and agricultural education. These four types of nonformal education overlap because they are often directed at the same groups of people—the rural and the indigenous. Education for these forgotten elements of Mexican society dates from the beginning of the Revolution. The rudimentary schools, begun in 1911, the rural schools and cultural missions of the 1920's, and several literacy campaigns are all examples of efforts to achieve the Revolutionary goal of bringing the fundamentals of education and culture to neglected groups.

NATIONAL LITERACY CAMPAIGN

In 1944, when the illiteracy rate still exceeded 50 percent, President Camacho launched a vigorous campaign against illiteracy. Millions of instructional booklets (*cartillas*) were printed and distributed; literacy training centers were set up; and a so-called "buddy system" was imposed by law obligating those who knew how to read and write to teach those who did not.

The campaign continued after World War II simultaneously with increased efforts to expand elementary school facilities. The percent of illiterates declined slowly from 53.26 in 1944, to 43.48 in 1950, and to 36.39 in 1960; although the total number of illiterates actually increased from 1944 to 1960 because of the sharp increase in population (table 10). One of the motivations for the Eleven-Year Plan was the recognition that the best antidote for the increasing number of illiterates was primary education for all.

Table 10.—Number and percent of literate and illiterate persons 6 years of age and over: Selected years, 1940–64

Year	Total population 6 years and over	Literate		Illiterate	
		Number	Percent	Number	Percent
1940	16, 579, 725	7, 208, 643	43. 48	9, 371, 091	56. 52
1944	18, 341, 033	8, 571, 972	46. 74	9, 769, 061	53. 26
1950	21, 380, 389	12, 085, 045	56. 52	9, 295, 344	43. 48
1958	26, 864, 286	16, 895, 482	62. 89	9, 968, 804	37. 11
1960	28, 442, 333	18, 092, 852	63. 61	10, 349, 381	36. 39
1964	31, 881, 978	22, 665, 345	71. 09	9, 216, 633	28. 91

SOURCE OF DATA: Secretaría de Educación Pública. *Obra Educativa en el Sexeno 1958–1964* (Educational Accomplishments in the Six-Year Period 1958–1964). Mexico, D.F.: The Secretaría, 1964, p. 264.

From 1940 to 1964, the population almost doubled while the illiteracy rate went down more than 25 percent—no mean achievement. In 1964 that rate was officially reported as 28.91 percent.

The organization coordinating the literacy campaign involves all levels of government, from the *Dirección General de Alfabetización y Educación Extraescolar* (General Directorate of Literacy Training and Nonformal Education) in the Secretariat of Public Education down to State and local boards, other Federal agencies, and private agencies.

The main instructing agencies are *Escuelas de Alfabetización* (Literacy Training Schools) and *Centros de Alfabetización* (Literacy Training Centers). The literacy schools supplement the Eleven-Year Plan by supplying first-grade education for all children in communities so small that elementary schools are not economically feasible. The Centers of Literacy Training teach adult illiterates. In 1964, a total of 367,950 students enrolled in 12,500 centers and schools.[1]

The literacy campaign has also instituted *Salas Populares de Lectura* (Public Reading Rooms) of two types—stationary and mobile. Both offer reading materials, educational motion pictures, and musical recordings for all ages. For neophytes in the newly discovered world of letters, these facilities reinforce basic skills. In 1964, a total of 125 Public Reading Rooms were in operation.[2]

Because the real goal of the literacy campaign is to raise living standards, it emphasizes literacy training as an integral part of an overall program rather than just instruction in reading and writing. For this reason the campaign cannot be separated from the activities of other agencies which focus on better living standards.

Plans for 1964–70

The literacy campaign plans for 1964–70 feature division of each Federal entity (with the exception, because of high rates of school attendance, of the States of Aquascalientes, Campeche, Tlaxcala, and of the Federal District) into six zones, one for each year of the 6-year plan.[3] Starting with the least difficult zone in the first year, the campaign has proceeded each year thereafter with the zone rated somewhat more difficult, and finally in its sixth and last year (1970) it will go into the zone rated most difficult of all. The campaign mobilizes maximum resources and concentrates on each zone for the designated year, divided into three phases: Organization, instruction for 10 months, and evaluation of results.[4]

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[1] Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–64*. Sexta Parte. For publication details on this and subsequent citations, see Selected Bibliography.

[2] Ibid., p. 278.

[3] Ibid. *Campaña Intensiva de Alfabetización*, p. 15.

The campaign makes maximum use of modern communications media. Eight commercial television and 31 commercial radio stations participated in 1966.[5]

CULTURAL MISSIONS

Closely related to the literacy campaign is the program of cultural missions. Of the 98 operating in 1964, 82 were classified as rural and 16 as motorized.

The first cultural mission was organized in 1923. In 1926, a system of six cultural missions was established on a permanent basis, primarily to provide inservice education for Federal rural teachers, many of whom were pressed into service with minimal preparation. A second objective was to bring the rudiments of culture and hygiene to communities in which the missions worked.

Objectives

Current objectives[6] of the cultural missions are similar to those in the earlier period, although Federal rural teachers are now generally much better trained. In a community selected because of slow development, the mission tries to establish educational services for children, obtain teachers, construct classrooms and annexes, and acquire teaching materials. All activities focus on five aspects of integral community development: health, home, the economy, recreation, and general cultural knowledge. The mission's main concern is to help the community help itself.

Organization and Equipment

Each rural cultural mission consists of the following persons:

One chief of mission (a certificated teacher with 5 years of rural experience).
One home economist.
One nurse-midwife.
One teacher in each of the following fields—
    agriculture.
    carpentry.

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[4] Ibid. *La Educación Pública en México*, pp. 26–27. Campeche, the pilot State, was able to claim on June 9, 1966, that all children ages 6–14 had a place in the primary schools and that 95 percent of the population between the ages of 12 and 49 had become literate.

[5] Ibid,, p. 26.

[6] Ibid. *Obra Educativo en el Sexenio 1958–1964*, p. 278. For a detailed description of the cultural missions—their objectives, personnel, and mode of operation—see Secretaria de Educación Pública. Dirección General de Alfabetización y Educación Extraescolar. Departamento de Misiones Culturales. *Bases de Organización y Funcionamiento de las Misiones Culturales.*

industrial arts.
masonry.
music.
plastic arts.
Ten teacher-promoters of literacy training.

Each of the 16 motorized cultural missions, also manned by a team of specialists, is equipped with three vehicles, permitting a wider sphere of action. Special courses for the professional improvement of both types of missions are offered regularly in six different regions.

Each rural cultural mission has the following minimum equipment: A vehicle with special truck body; a sound projector, a screen, and other accessories; a plant for generating electricity; sound apparatus; agricultural tools; a small library; instructional materials; sports equipment; and a first-aid kit.

Achievements

It is impossible to measure the achievements of the cultural missions because they work in areas where positive results come slowly, where centuries of isolation and primitive living yield reluctantly to change. The elevation of living standards in a backward community is not achieved simply by providing a formal school and a teacher; it requires more than literacy training. The experience of the cultural missions indicates that community improvement results from a many-pronged approach that touches all aspects of community life.

For more than 40 years, the cultural missions have been forceful agencies of fundamental education in Mexico. Because their objectives, organization, and program conform to the highest pedagogical practices, they have attracted considerable attention from other countries with similar problems and less sophisticated solutions. Their impact on rural Mexico is perhaps not dramatically evident because the missions have been few in number, whereas the isolated settlements are many and their needs incredibly great.

INDIAN EDUCATION

The Indian problem in Mexico is not racial but cultural. Indian education is part of an integral program of regional and community improvement, administered by many public and private agencies and supported by every Government since the Revolution.

In 1925 the Secretariat of Public Education established in Mexico City *La Casa del Estudiante Indigena* (freely translated, Boarding School for Indian Students), and invited each of the State Governors to send 10 to 20 youths of pure Indian descent to this new school especially created for them.[7] After an intensive training course, each young Indian was expected to go back to his community and to share his learning with its inhabitants. The plan was not successful, however, for having absorbed an amount of urban culture, the Indian youth was reluctant to return to his original culture group and environment. Nevertheless, by showing that the Indian could be educated and could assimilate a new culture, the experiment emphasized the geographical and cultural nature of the differences between an Indian and a Mexican.

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[7] Ibid. *La Casa del Estudiante Indigena,* p. 31.

The Mexican census reports the Indian population from a linguistic standpoint.[8] In 1960 it recorded a total of 3,658,000 Indians, of whom 3,030,000 were older than 5 years. Of this latter group, almost 2 million were classified bilingual and the rest monolingual. Whereas the bilingual group has almost doubled in number since 1930, the monolingual group has declined slowly and, of the two groups, it gives the Mexican Government the greater concern.

Agencies for Indian Education

Two important agencies participating in programs for developing Indian communities are the *Dirección General de Asuntos Indígenas* (General Directorate of Indian Affairs), a division of the Secretariat of Public Education, and the *Instituto Nacional Indigenista* (National Indian Institute). The latter was created in 1948 as a decentralized organ of the Federal Government to accelerate the integration of the Indian population, improve their living conditions, and coordinate the activities of the many different government authorities representing agriculture, education, health, and public works.

Achievements: 1958–64

The General Directorate of Indian Affairs has coordinated many educational activities for Indians. For example—

1. **The Service for Promoting Bilingual Culture.**

   (Started in 1964, the service—carried on by persons known as *promotores*—prepares monolingual Indian children for the first grade. The *promotores* are either recruited from Indian boarding school graduates or are prepared by special training courses at the Federal Institute for Teacher Training—*Instituto Federal de Capacitación del Magisterio*. The instruction books are bilingual. In 1965, a total of 600 bilingual *promotores* prepared some 18,000 children to enter the first grade of rural schools and 250 bilingual teachers taught the first and second grades composed of pupils so prepared. A year later in 1966, 1,400 *promotores* were preparing 42,000 children.)[9]

2. **Indian Elementary Schools.**

   (From 1958 to 1964, the number of Indian boarding schools increased from 21 to 23; the number of students in those schools, from 2,722 to 5,221.)

3. **Brigades for Indian Improvement.**

   (The *Brigadas de Mejoramiento Indígena* increased in number from nine to 20 during the years 1958–64. Constituted like the cultural missions, these brigades, or teams, have objectives similar to those of the missions.)

4. **Inservice Education for Leaders in Indian Education.**

   (Key leaders in Indian education, such as boarding school directors and brigade chiefs, were given a special 3-year course organized by the Federal Institute for Teacher Training.)

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[8] Ibid. *Obra Educativa en el Sexenio 1958–1964*, pp. 296–300.

[9] Ibid., *La Educación Pública en México*, p. 14.

5. **Proctorships for Indian Communities.**

   (Dedicated to the defense of the economic, legal, political, and social interests of the Indian community, the proctorships—*Procuradurías de Comunidades Indígenas*—help assign teachers, build schools, and obtain teaching materials.)

AGRICULTURAL EDUCATION

The structure of agricultural education was drastically revised in 1959. Before that year, formal agricultural education was the responsibility of a network of 12 Practical Schools of Agriculture (*Escuelas Prácticas de Agricultura*), which offered a 3-year secondary program including practical agricultural courses. Average annual enrollment in all of these courses was 2,100,[10] and students completing them received the title *Prácticos Agrícolas* (Agricultural Practitioners).

It was recognized in 1959 that a broader program was required to elevate the conditions of rural life and increase agricultural production and that the new agricultural educational program accordingly should be more social and practical. Education should come to homes and farms, to serve the broad mass of rural people, with no restrictions as to age, previous schooling, or sex.

New Schools and Centers

To implement the revised plan, eight of the Practical Schools of Agriculture became rural normal schools; the other four, Centers for Fundamental Education in Agriculture and Animal Husbandry (*Centros de Enseñanza Agropecuaria Fundamental*). Without imposing prerequisites or other restrictions, the latter offered short courses on farming and related activities.

The agriculture and stock-raising centers also offered courses to prepare the *promotores* and assistants serving in another type of *brigadas*—the *Brigadas de Promoción de Agricultura y Agropecuaria* (Brigades for Promoting Agriculture and Animal Husbandry).

With 37 brigades organized from 1959 to 1964, their objectives were to—[11]

1. Improve agricultural techniques.
2. Raise the level of rural life in all its aspects.
3. Encourage worthy use of leisure time.
4. Urge that rural children attend school regularly, at least through the primary cycle.

The brigades work in isolated, backward regions. Members of a brigade are a chief, a chauffeur, manual workers, and a specialist in each of the following: Fruit raising, home economics, horticulture, industrial activities, and veterinary medicine. A brigade's equipment consists of audiovisual projection materials, tools for farmwork, and a vehicle.

The entire brigade moves from one rural community to another on a regular basis, working for a day or two with future farmer clubs, women's clubs, and other groups, and using various communication media: Bulletins, demonstrations, film projections, interviews, newspapers, radio, and talks.

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[10] The Banco Nacional de México points out that this enrollment represented only 0.13 percent of the total number (1.6 million) of rural youths. (*Review of the Economic Situation of Mexico*, February 1964, p. 6.)

[11] Ibid., p. 304.

Another significant development in agricultural education was the establishment in 1963 of *Centros de Capacitación para el Trabajo Rural* (Farm Training Centers). Most other agencies attempting to improve rural education operate in retarded areas; by contrast, these centers operate in areas where agriculture is prosperous, mechanization has begun, a lack of skilled labor lowers productivity, and population is dense enough to provide a sufficient number of students.

To develop the skills of farmworkers, courses cover almost every phase of agricultural production: Control of diseases and pests, dairying, farm machinery care and maintenance, livestock raising, regional crops, and even cooking and homemaking.[12] Training is intended for youths under 21 who, having finished elementary school, are unable to continue their studies. (Adults may also enroll.)

The Secretariat of Public Education reported in 1966 that 5,800 students were taking courses at 13 centers.[13] [14]

(Technical agricultural education at a higher level will be discussed in the next chapter.)

Prospects

Because elevation of rural society is one of the proclaimed goals of the Mexican Revolution, the Government will probably give increasing attention to rural education in a broader sense than mere agricultural education and will provide both the formal type and the informal type that grows from community need. The present trend indicates that—

1. Literacy training will be emphasized, not as an end in itself, but as an integral part of fundamental education.
2. Teams of specialists (such as those that make up the cultural missions, the Brigades for Indian Improvement, and the Brigades for Promoting Agriculture and Animal Husbandry) will continue to be preferred because of their direct impact on the rural community's total life.
3. Search will continue for the best administrative organization to coordinate efforts to elevate rural society.

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[12] For a description of the courses, see *Centros de Capacitación para el Trabajo Rural* (Secretaría de Educación Pública).

[13] The Secretaría. *La Educación Pública en México*, p. 28.

[14] Another official source (no date) reported 20 centers.

IX.

Technical Education

EARLY CRAFTS INSTRUCTION

The antecedents of vocational and technical education in New Spain can be traced to the 16th century, when schools of various religious orders gave instruction to the Indians in practical subjects like ironworking, shoemaking, stonecutting, tailoring, and weaving. The chronicles of New Spain amply document the Indians' extraordinary aptitude for arts and crafts.

Progress in vocational and technical education was, however, never widespread during Mexico's colonial period. Even after independence, little was done to promote technical education, although a few schools were established, among them *La Escuela Nacional de Agricultura y Veterinaria* (National School of Agriculture and Veterinary Medicine) and *La Escuela Nacional de Artes y Oficios* (National School of Arts and Crafts). As in other Spanish American countries, the Spanish heritage in Mexico retarded educational growth in the practical arts.

THE PRESENT SYSTEM

Technical education received effective impetus in the 1930's, when its system became structured and the National Polytechnical Institute was founded. Progress increased rapidly during World War II and has continued. The development of technical education parallels that of industrialization, although the faster pace of the latter has created a gap which causes increasing concern.

Technical education may be defined as that education which augments the individual's productive skills. It may be offered at all levels, from the most elementary to the graduate, and it encompasses training for vocations, subprofessional occupations, and professional endeavors requiring a university title or degree.

The Secretariat of Public Education classifies technical education broadly as *systematic,* requiring for entrance a certificate of completion from lower school, and *nonsystematic,* requiring no certificate. Systematic technical education has four distinct levels: (A) Basic secondary, (B) preparatory secondary, (C) higher, and (D) postgraduate (fig. 2).

Level A: Basic Secondary

After elementary school, a pupil interested in pursuing a technical career has three choices: (1) To follow the technical cycle leading to the preparatory, (2) to pursue a terminal industrial or commercial course for 2 to 4 years (the vast majority do not choose terminal courses), or (3) to enroll in one of the Industrial Training Centers (*Centros de Capacitación para el Trabajo Industrial*). Ten of these centers were established in 1963, after the Secretary of Public Education, Torres Bodet, had expressed the need for some type of training program to accommodate the thousands finishing elementary school with little hope of continuing regular studies.[1]

Industrial Training Centers offer courses of 20 to 40 weeks in automobile mechanics, carpentry, ceramics, drawing, dressmaking, electricity, masonry, mechanics, metalworking, radio, soldering, and weaving. Courses are open to students under age 21 who have completed elementary school. Workers under age 40 may pursue similar courses in the evenings.

In April 1964, the Secretary of Public Education announced that over 10,000 students were in training at 10 centers and that 18 more centers had been established.[2] Educational authorities were pleased by the program's initial success, particularly by the high level of student interest (the dropout rate was less than 7 percent, considerably lower than in regular technical courses of longer duration).[3] By 1966, the number of centers had increased to 30, and of enrollees to 30,000.[4]

A 1961 industrial census showed that only about 20 percent of industrial workers had adequate technical preparation, and that the rest were unskilled although working in industries requiring at least 70 percent of their workmen to be skilled.[5] The lag of technical education behind industrial progress was also pointed out in other surveys besides the census. The Industrial Training Centers seek to reduce this gap.

Level B: Preparatory Secondary

Three choices are available also at the preparatory secondary level: (1) An accelerated technical training course of 1 year; (2) preparatory technical school of 2 years, leading to professional schools; and (3) middle-level technical education of 2 to 4 years resulting in a diploma or title.

Education for middle-level careers is still in its initial stages (ch. VI). Preparatory schools cannot accommodate the growing numbers now grad-

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[1] Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–1964,* p. 82. For publication details on this and subsequent citations, see Selected Bibliography.

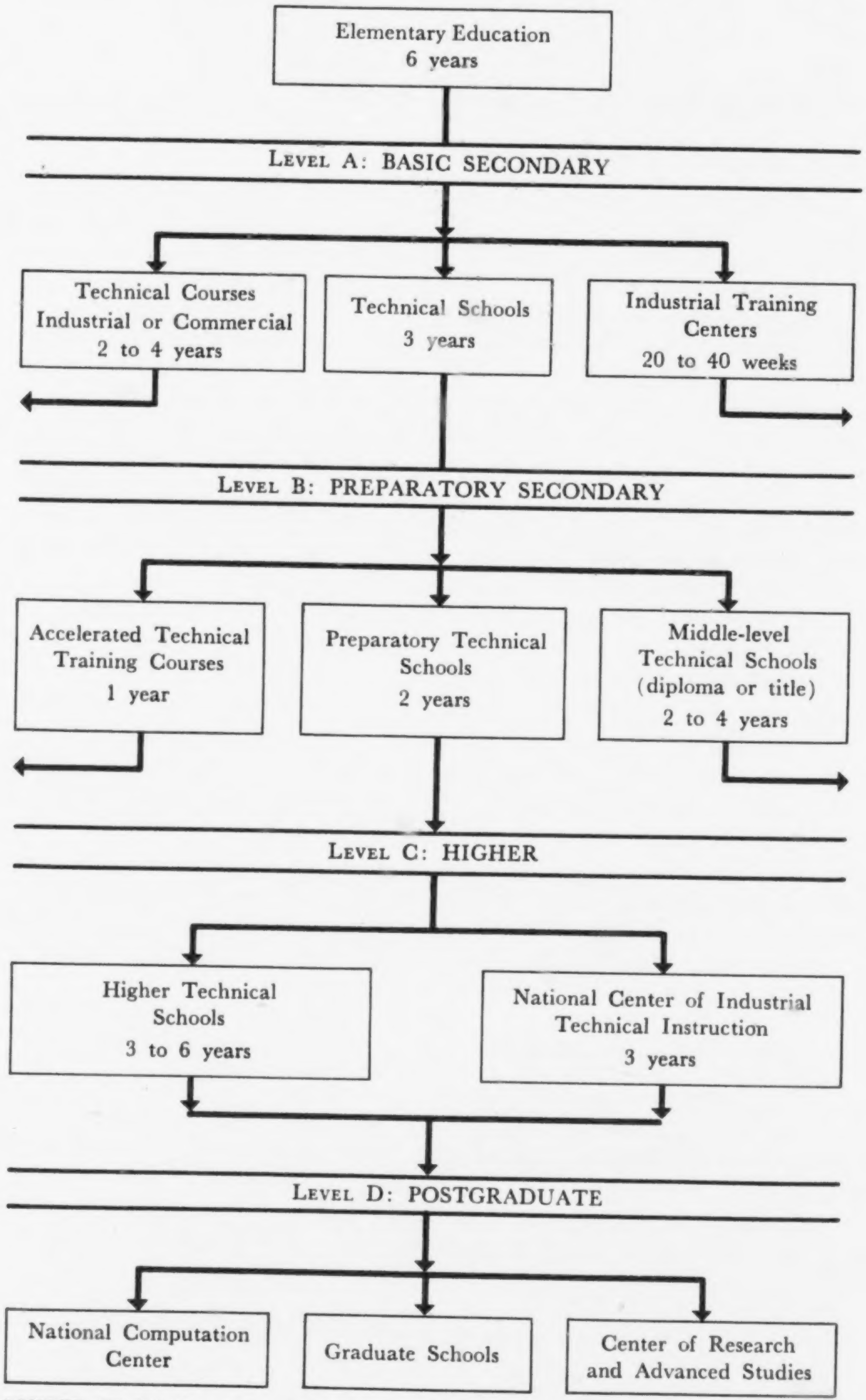
[2] Ibid., p. 100.

[3] Ibid.

[4] Ibid. *La Educación Pública en México,* p. 28.

[5] Ibid. *Obra Educativa en el Sexenio 1958–1964,* p. 98.

Figure 2.—Organization of Technical Education


Elementary Education
6 years
LEVEL A: BASIC SECONDARY
Technical Courses
Industrial or Commercial
2 to 4 years
Technical Schools
3 years
Industrial Training
Centers
20 to 40 weeks
LEVEL B: PREPARATORY SECONDARY
Accelerated Technical
Training Courses
1 year
Preparatory Technical
Schools
2 years
Middle-level
Technical Schools
(diploma or title)
2 to 4 years
LEVEL C: HIGHER
Higher Technical
Schools
3 to 6 years
National Center of Industrial
Technical Instruction
3 years
LEVEL D: POSTGRADUATE
National Computation
Center
Graduate Schools
Center of Research
and Advanced Studies

SOURCE OF DATA: *Centro Nacional de Enseñanza Técnica Industrial*. 1965–66. p. 4.

uating from the basic cycle of secondary schools. Students tend to choose preparatory or normal schools rather than those which give training for occupations of immediate and direct use to an expanding economy. Outside the Federal Capital, facilities for middle-level technical education are limited; many more are needed.[6]

Level C: Higher

Appearing at level C are the higher technical courses offered by the National University, the National Polytechnical Institute, the regional technological institutes, the Institute of Technology and Higher Education of Monterrey, State universities, and other public and private institutions. To be admitted to higher technical courses an applicant must have completed preparatory technical school. Courses vary in length from 3 to 6 years. The predominant institution of higher technical studies is the National Polytechnical Institute, which enrolled 15,262 students in its professional schools in 1966. Coordination of this technical education level is the responsibility of the Subsecretariat of Technical and Higher Education in the Secretariat of Public Education.

In 1963 a center to prepare teachers of technical education for the middle and higher levels was established. This *Centro Nacional Enseñanza Técnica Industrial* (National Center for Technical Industrial Instruction), a decentralized organ of the Federal Government, is supported in part by contributions from the Special Fund of the United Nations.[7] Admission requires completion of either the university preparatory or the technical preparatory cycle. The first two semesters of the six-semester course are common for all students; then each student chooses a specialty from construction, electricity, electronics, or mechanics. There were 301 students enrolled in 1964.[8] The Center is expected to make a significant contribution toward upgrading the qualifications of technical schoolteachers, who in general have lacked pedagogical preparation.

Level D: Postgraduate

The most advanced level of technical training, the postgraduate, is offered in graduate schools, the National Computation Center, and the Center for Research and Advanced Studies. The National Computation Center, set up in 1963, prepares specialists in computer techniques. The Center for Research and Advanced Studies of the National Polytechnical Institute was established in 1961 as a decentralized organ of the Federal Government to prepare researchers and professors in science and technology. In 1963 its scientific personnel consisted of 35 researchers, all full time.[9]

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[6] Ibid. *VII Asamblea Nacional Plenaria,* pp. 77–78.

[7] For a complete description of the administrative organization and program of studies, see *Centro Nacional de Enseñanza Técnica Industrial 1965–1966.*

[8] Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–1964,* p. 160.

[9] Secretaría de Educación Pública. *Informe,* p. 257.

Table 11.—Number of industrial training centers, schools, and institutes, and number of students, by region: 1964

[-------- indicates no schools or students]

Regional	Total		Industrial training centers		Governmental industrial technical schools		Private industrial technical schools		Special schools and courses		Regional technological institutes		Higher education	
	Schools	Students	Schools	Students	Schools	Students	Schools	Students	Schools	Students	Schools	Students	Schools	Students
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total	**216**	**138,127**	**30**	**31,130**	**69**	**52,264**	**54**	**8,697**	**7**	**4,627**	**10**	**10,214**	**46**	**31,195**
Bajío	19	7,639	3	2,638	8	2,556	3	400	--------	--------	1	783	4	1,262
Central	21	12,253	3	2,790	9	6,826	3	470	1	448	1	687	5	1,480
Gulf	14	6,571	1	1,100	4	1,456	3	200	--------	--------	2	2,218	3	1,149
North	10	6,708	2	2,508	2	1,555	1	101	--------	--------	2	2,140	3	404
North-central	4	2,275	1	894	1	519	--------	--------	--------	--------	--------	--------	2	862
Northeast	23	14,488	4	4,321	3	1,418	4	318	1	627	2	2,495	9	4,309
Northwest	19	9,962	3	3,367	6	3,953	2	200	2	885	1	1,213	5	344
Pacific	13	7,733	4	3,872	2	740	2	150	2	97	--------	--------	3	2,874
South	11	3,707	--------	--------	8	3,388	2	285	--------	--------	--------	--------	1	34
Yucatán Peninsula	9	2,663	1	800	4	902	--------	--------	--------	--------	1	678	3	283
Federal District	73	64,128	8	8,840	22	28,951	34	6,573	1	1,570	--------	--------	8	18,194

SOURCE OF DATA: Banco Nacional de México. *Review of the Economic Situation of Mexico.* XLI: 477: 8–9, August 1965.

REGIONAL TECHNICAL EDUCATION

The distribution in 1964 of technical industrial education of all types and at all levels was notable for being concentrated rather than dispersed throughout the regions of Mexico. For example (from table 11):

1. The Federal District alone had 64,128 students attending industrial training facilities (centers, schools, and institutes) out of the national total of 138,127; and 73 of the total 216 facilities.
2. The north-central, south, and Yucatán regions had especially small industrial training enrollments.

In the northeast region (with its 23 industrial training facilities, next after the Federal District with its 73) is Monterrey (State of Nuevo León), Mexico's third largest city. Most of the region's 23 facilities are concentrated in Monterrey as most of the Federal District's 73 are concentrated in Mexico City. With regard to these concentrations it undoubtedly is no coincidence that they parallel the concentrations of industries in the two cities.

An estimate of the number of graduates each year in all branches of technical education at the higher education level is that this number is approximately 3,200.[10] The 31,195 students in all branches at that level in 1964 (table 12) constituted 26.8 percent of the 116,628 higher education students as a whole in that year (table 7 and app. A).

Table 12.—Number of students, by course, in eight regional technological institute offering higher technical training: 1958 and 1964

[-------- indicates no data in source]

Instituto Tecnológico Regional de—	Total		Administration		Chemical Engineering		Electrical Engineering		Industrial Engineering		Mechanical Engineering	
	1958	1964	1958	1964	1958	1964	1958	1964	1958	1964	1958	1964
Total	168	916	10	------	50	78	33	53	25	720	50	65
Celaya	--------	125	--------	--------	--------	--------	--------	--------	--------	125	--------	--------
Ciudad Madero	112	235	--------	--------	50	78	33	53	--------	54	29	50
Coahuila	--------	78	--------	--------	--------	--------	--------	--------	--------	78	--------	--------
Chihuahua	56	150	10	--------	--------	--------	--------	--------	25	135	21	15
Durango	--------	103	--------	--------	--------	--------	--------	--------	--------	103	--------	--------
Mérida	--------	91	--------	--------	--------	--------	--------	--------	--------	91	--------	--------
Orizaba	--------	45	--------	--------	--------	--------	--------	--------	--------	45	--------	--------
Veracruz	--------	89	--------	--------	--------	--------	--------	--------	--------	89	--------	--------

SOURCE OF DATA: Asociación Nacional de Universidades e Institutos de Enseñanza Superior. *La Educación Superior en México en el Régimen del Presidente López Mateos* (Higher Education in Mexico During the Regime of President López Mateos). México, D.F.: The Asociación, November 1964, pp. 15-16.

Agricultural

Technical agricultural education is far less developed than industrial education. Although Mexico's population is almost half rural, there were in 1964 only eight schools of higher agricultural education having only 2,154 students; and only five veterinary and animal husbandry schools having only 1,779 students. One summary of this situation reads as follows:

> The number of schools and students is small, so agricultural techniques are deficient; yields are low; resources are unused; and crops are inadequate.[11]

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[10] Banco Nacional de México. *Review of the Economic Situation of Mexico.* No. 477, p. 7, August 1965.

[11] Ibid. No. 479, p. 8, October 1965.

Unless technical agricultural education expands greatly, agriculture will probably continue to be the "problem which has been termed the most serious in Mexico." [12] Myers contends that "the most important deficiency of higher education in the least advanced states (and in most of the nation) is the dearth of institutions or faculties preparing students for the occupation that concerns the majority of the labor force: agriculture." [13]

THE CONTINUING NEED

No part of the educational system is more closely entwined with the needs of a developing economy than the vocational and the technical. Educators agree that although Mexico has made great strides in this educational area, present facilities are still inadequate.

As more and more pupils complete elementary education, the need to expand vocational and technical education will have to keep pace—or a little ahead. Even limited surveys of the country's manpower needs point up serious shortages, particularly in middle-level professions.[14]

Technical education in Mexico faces formidable obstacles firmly rooted in historical tradition. Although a considerable breakaway from traditional academic disciplines has occurred, the most prestigious educational path still leads through the general and preparatory courses to the university and then to a professional career. Mexican students tend to accept education leading to vocational and subprofessional careers only when that other path is unattainable.

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[12] Ibid., p. 9.
[13] Myers. Op. cit., p. 61.
[14] Ibid., pp. 122–128.

X.

The Teaching Profession

The educational movement that began with the Mexican Revolution produced an ever-increasing demand for teachers for the new classrooms. Before 1921, most teachers were trained in The National School for Men established in 1887, a similar school for women established in 1890, and several State normal schools. These schools prepared teachers for urban schools, since rural schools were then practically nonexistent. The rural school movement of the 1920's required a new type of teacher and new types of training institutions. Other additions and modifications in the educational structure brought still further changes to rural schools.

TYPES OF NORMAL SCHOOLS

Normal schools may be classified according to:

1. *Teaching level preparation:* Kindergarten, elementary, secondary, or higher.
2. *Source of support:* Federal, State, or private.
3. *Geographical area:* Urban, rural, or regional.
4. *Teacher preparation for specialties:* Education of atypical children, physical education, etc.
5. *Inservice education:* Uncertified (title-less) teachers.

TYPE 1: TEACHING LEVEL PREPARATION

Kindergarten

In 1958, a total of 26 normal schools for kindergarten teachers enrolled 1,557 students; in 1966, a total of 34 enrolled 4,533 students.[1] Private schools accounted for the greatest increase in enrollment, from 727 in 1958 to 2,885 in 1966.

The leading institution for preparing kindergarten teachers, the *Escuela Nacional de Educadoras,* formerly an annex to the *Escuela Nacional de Maestros,* received its own separate plant in 1959.

Elementary

In 1960, a curriculum that builds on the first secondary cycle (offered in most normal schools) was instituted in normal schools for elementary teachers. The number of these schools increased from 138 in 1958 to 175 in 1966; and their enrollment in the professional cycle in the same years, from 24,543 to 33,713.[2] This substantial growth was the result of efforts to meet the demands of the Eleven-Year Plan for elementary school teachers.

The production of teachers for elementary schools, however, has exceeded the demand, so that many State and private normal school graduates have little chance to get teaching jobs. In 1964, a total of 12,356 students finished normal school: 5,088 from Federal, 4,000 from State, and 3,268 from private schools.[3] Of these, only about 7,000 could be placed. Since graduates of Federal normals are guaranteed positions, this meant that more than 5,000 from State and private normals would not find teaching positions. This oversupply of teachers has become a serious problem, resulting in recommendations that State governments limit normal school enrollments to the needs of their own systems; and that private institutions warn their students that after graduating they might not be able to find jobs as teachers.

Secondary

Schools which prepare teachers for the secondary level are considered part of the higher education structure. Known as *escuelas normales superiores* (higher normal schools), they number four public and five private, listed below by State:

State	*City*	*Higher Normal School*
	Public	
Chihuahua	Chihuahua	Escuela Normal Superior de Chihuahua.
Guanajuato	Guanajuato	Escuela Normal Superior de Guanajuato.
Nayarit	Tepic	Escuela Normal Superior de Nayarit.
Puebla	Puebla	Escuela Normal Superior de Puebla.
	Private	
Distrito Federal	México	Escuela Normal Superior "F.E.P."
Jalisco	Guadalajara	Escuela Normal Superior "Nueva Galicia."
Nuevo León	Monterrey	Escuela Normal Superior "Labastida."
Oaxaca	Oaxaca	Escuela Normal Superior de Oaxaca.
Puebla	Puebla	Escuela Normal Superior de Puebla.

Several universities also prepare secondary teachers in their *facultad* of philosophy and letters or in a separate *facultad* of education.

The leading institution for preparing secondary school teachers is the one in Mexico City—*Escuela Normal Superior*. It accounts for more than half of

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[1] Secretaría de Educación Pública. *La Educación Pública en México,* p. 47. For publication details of this and subsequent citations, see Selected Bibliography.

[2] Ibid., p. 46.

[3] Ibid. *VII Asamblea Nacional Plenaria,* p. 86.

all students who plan to teach at the secondary level and offers 4-year programs leading to a degree in 15 specializations, programs leading to a doctorate in four areas, and special summer courses for teachers in service.[4]

To be admitted to the Higher Normal School, a student must either be a graduate of a normal school for kindergarten or elementary teachers or must have completed the secondary preparatory cycle. In addition, he must pass an entrance examination.

Significant developments at the Higher Normal School during the past several years were a start in 1963 toward constructing shops for the school and for its secondary school annex and the creation in 1964 of 12 full-time and 12 half-time staff positions.

Higher

No special institutions exist to prepare professors for higher education teaching. The programs offered by *facultades* of the National University, the *Colegio de México,* and the Center for Research and Advanced Studies of the National Polytechnical Institute, however, provide the main source for professors.

TYPE 2: SOURCE OF SUPPORT

Federal

Through the Secretariat of Public Education,[5] The Federal Government controls the National Normal System, composed of the following schools:

Centros Normales Regionales.	(Regional Normal Centers.)
Escuela Nacional de Educadoras.	(National Normal School for Kindergarten Teachers.)
Escuela Nacional de Maestros.	(National Normal School for Teachers.)
Escuela Normal para Capacitación en el Trabajo Industrial.	(Normal School for Industrial Training.)
Escuelas Normales para la Capacitación en el Trabajo Agropecuario.	(Normal Schools for Training in Agriculture and Animal Husbandry.)
Escuelas Normales Particulares Incorporadas.	(Private Incorporated Normal Schools.)
Escuelas Normales Rurales.	(Rural Normal Schools.)
Escuelas Normales Urbanas.	(Urban Normal Schools.)

Located in Mexico City, the *Escuela Nacional de Maestros* is the country's largest normal school. In 1958 it had four departments: One each for men and women, one for a coeducational evening school, and one for kindergarten training. The obligation of social service is firmly established with the requirement that before graduation teachers must spend at least 1 year in communities designated by the Secretariat of Public Education.

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[4] For a full description of the programs see *Revista de la Escuela Normal,* No. 4, July–December 1964. Secretaría de Educación Pública. Dirección General de Enseñanza Superior e Investigación Científica.

[5] The Secretariat also controls institutions preparing teachers for secondary schools, normal schools, physical education, and special education. A division of the Secretariat, the *Instituto Federal de Capacitación del Magisterio* (Federal Institute for Teacher Training) provides inservice training.

The constantly growing demands for teachers in the Federal District are met by graduates of the *Escuela Nacional de Maestros* who have the highest academic averages. This same *Escuela Nacional* in 1964 initiated plans to prepare teachers for industrial education in several fields as a counterpart to the program for training industrial workers carried on by the Industrial Training Centers (*Centros de Capacitación para el Trabajo Industrial*) first established in 1963 (ch. IX).

State

In 1966, there were 39 State and 38 Federal normals, with enrollment in the latter slightly greater. Most of the State normals receive subsidies from the Federal Government.

One State normal has had a particularly long and illustrious career—the *Escuela Normal Veracruzana "Enrique Rébsamen."* Named after the Swiss educator who founded it in 1887, and located in Jalapa (State of Veracruz), the school had graduated more than 4,600 elementary school teachers by 1963. In the 6 years from 1958 to 1964 "Enrique Rébsamen" more than doubled its annual budget from 1,004,768 to 2,180,348 pesos. It is still recognized for its leadership in a State which has long supported a strong educational system.

TYPE 3: GEOGRAPHICAL AREA

Urban and Rural

Urban normal schools are of two types: Federal and federalized. The former type is found in the cities of La Paz, Mexicali, and Morelia;[7] and the latter type, which exists by agreement between the Federal Government and the States, in the cities of Ciudad Victoria, Oaxaca, and Pachuca.[8] Functioning as part of the system controlled by the Secretariat of Public Education, federalized normals receive State as well as Federal support. Students in both types of institutions must perform their period of social service in localities designated by the Secretariat.

Rural normal schools maintained by the Federal Government throughout the country are boarding schools. Students come from rural areas, receive full scholarships, and are assigned to rural communities after completing their studies. Several rural normals have initiated courses to prepare teachers for the *Centros de Capacitación para el Trabajo Rural.*

Regional

In 1960 two regional normals were established as part of the Eleven-Year Plan in the cities of Ciudad Guzmán (State of Jalisco) and Iguala (State of Guerrero). These normals served as pilot schools, putting into practice new plans and programs and acting as centers of demonstration and experimentation. One initially successful experiment established a system of substitute homes for regional normal students and provided them with cash scholarships. This experiment might lead to lowering the cost of regional normals by reducing or eliminating dormitory facilities.

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[7] Located in the States of Baja California Sur, Baja California Norte, and Michoacán, respectively.

[8] Located in the States of Tamaulipas, Oaxaca, and Hidalgo, respectively.

TYPE 4: TEACHER PREPARATION FOR SPECIALTIES

Atypical Children

The *Escuela Normal de Especialización,* an institution of higher education, prepares graduates of kindergarten or primary normals to teach mentally retarded children, crippled children, children with speech, hearing, and visual defects, and juvenile and adult delinquents. The course is 2 years. This normal school also conducts medical and pedagogical research and operates an elementary school for mentally retarded children as an experimental laboratory in an annex to the main school.

A total of 220 prospective teachers were enrolled in 1964, compared with 129 in 1958.[9] They included scholarship holders from 10 Mexican States and six Latin American countries outside Mexico.

Physical Education

Of the five normal schools for physical education operating in 1964, four were State schools (in the States of Chihuahua, Puebla, Tabasco, and Veracruz) and one was a Federal school, *Escuela Nacional de Educación Física* (in Mexico City). This last one is the principal institution for preparing physical education teachers for all school levels. The 2-year course includes a heavy schedule of practical activities. Since 1961, refresher courses have been offered for teachers in service. From 1958 to 1964 the total number of graduates was 727.[10]

TYPE 5: INSERVICE EDUCATION

The *Instituto Federal de Capacitación del Magisterio* (Federal Institute of Teacher Training) has had a tremendous growth since its founding in 1945. It provides the means by which inservice teachers without titles can be certified. In 1923, when the cultural missions were set up to provide inservice help to uncertified rural teachers, rural schools were being established at a faster rate than teachers could be trained to conduct them. This continuing situation eventually prompted the establishment of the institute.

During the years 1945 to 1964 through a system of correspondence courses and oral instruction, the institute graduated more than 33,000 teachers with titles.[11]

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[9] Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–1964,* p. 158.

[10] Ibid., p. 159.

[11] Ibid., pp. 160–161.

To serve title-less teachers in Mexico City, the institute maintains an *Escuela Normal Oral* (Oral Normal School), which teachers attend on weekends. Materials developed in this school are used lated in correspondence courses administered by the *Escuela Normal por Correspondencia,* located in the Capital but serving teachers in the interior. Twelve regional subdirectors, 38 coordinating agencies, and a corps of supervisors assist in coordinating and supervising the correspondence instruction.

Correspondence materials have been edited and compiled into textbooks widely distributed and frequently used in normal schools. A system of lessons broadcast by 100 radio stations augments the textbooks.

Since the institute's major objectives have largely been realized, it now emphasizes the improvement of teachers (*perfeccionamiento*) through courses, lectures, publications, radio broadcasts, and seminars. It has organized special courses for chiefs of cultural missions and chiefs of the Brigades for Improvement of Indian Communities, for directors of elementary schools, and for inspectors of elementary education in every State capital.

In 1964 the institute initiated an inservice program for first and second grade teachers to help reduce their abnormally high rate of pupil dropouts. The institute's growth is indicated by its budget, increasing from 6,248,947 pesos in 1958 to 46,185,532 in 1964.[12]

EMPLOYMENT CONDITIONS

Teachers are employed by the Federal Government, State governments, municipalities, and private agencies. Under Federal employment teachers are usually better paid and have better working conditions, although several States are making determined efforts to bring their salary scales in line with Federal standards. The range of teacher salaries in private institutions is generally wider than that of public institutions.

Job Security

The Statute for Government Employees protects the teacher against unjustified dismissal. His appointment can be canceled only if he resigns, abandons his job, or dies; or if an Arbitration Board for Government Employees decides that he has committed proven misdemeanors or has become mentally or physically disabled.

Salaries

Since 1958 (when a rural teacher, for example, never received more than 1,015 pesos—$81.20—per month) salaries have shown a marked increase. In 1964, however, he could earn a maximum of 2,376 pesos ($190) per month.[13] The salaries of certified teachers serving in the interior were finally in 1964 made equal to those of teachers in the Capital having similar qualifications. A sampling of monthly salaries for teachers in various positions in 1958 and 1964 shows the advances: [14]

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[12] Ibid., p. 166.
[13] Ibid. *Informe*, p. 323.
[14] Ibid.

Position	Amount in pesos	
	1958	1964
Federal District		
Director (elementary or kindergarten)	1, 000	1, 760
Classroom teacher (elementary or kindergarten)	800	1, 100–1, 600
Classroom teacher (secondary)	78	104–124
Interior		
Director (elementary)	720	1, 760
Classroom teacher (elementary or kindergarten)	600	1, 100–1, 600

Secondary school teachers are usually paid by the hour, with an initial load of 12 hours per week.

Advancement

Under the law, the *Comisión Nacional de Escalafón* (National Seniority Commission), composed of two representatives of teacher organizations, two from the Government, and an arbitrator designated by both parties, determines promotions of teachers on the basis of their qualifications, performance, and seniority. Length of service is rewarded by salary increases every 5 years.

Other Benefits

Through the Institute of Security and Social Services, teachers and their families receive hospitalization, medical attention, and medicines. For these benefits teachers contribute 8 percent of their salaries and the Government contributes an amount equal to 12.75 percent.

Still other benefits, either available to the teacher by virtue of his job or accruing to him when he retires, are the following:

1. Eligibility for scholarships and study trips abroad or in Mexico, with full salary payment.
2. Low-cost mortgage loans, use of vacation and recreation centers, and travel and per diem expense for official work away from residence.
3. Use of nonprofit discount stores throughout the country for purchase of food, housewares, and medicines.
4. Mutual insurance system providing a 20,000-peso policy, 50 percent payable to the teacher when he retires and the remainder to beneficiaries when he dies.
5. Retirement with full pay for temporary or full disability until disability ceases or the teacher becomes eligible for retirement.
6. Retirement after 30 years' service, regardless of age, with benefits equal to salary average during teacher's last 5 years.

Teachers also receive benefits and protection from membership in the *Sindicato Nacional de Trabajadores de Educación* (National Syndicate of Educational Employees), a part of the *Federación de Trabajadores del Estado* (Federation of Government Employees). For more than 20 years, the syndicate has invested substantial sums in facilities for editorial services, hotels for rest and recreation, social and medical services, and teacherages. All these benefits provide a higher level of security for teachers than their salaries alone would make possible.

PROFILE OF AN ELEMENTARY TEACHER

A study completed in 1964 by the Socio-Pedagogical Laboratory of the National Pedagogical Institute reveals certain insights into the cultural, economic, and social life of an elementary teacher in the public schools of the Federal District. To what extent the conclusions drawn by this study—a selected sampling—can be generalized to apply to teachers at other levels and in other localities is not known, but certainly these conclusions have some relevance.

Twenty-two of the study's conclusions are the following:[15]

1. Teachers show love for their profession, which they usually have chosen freely.
2. The majority of teachers live in rented apartments.
3. The average number of family members occupying the teacher's household is five, plus two additional persons not members of the family.
4. About half the teachers consider their income seriously insufficient.
5. For economic reasons, teachers usually do not want their sons to become teachers.
6. The teacher and his family do not show much interest in trades and crafts, in spite of the country's need for skilled technicians.
7. The teacher's chief reason for changing to another profession is economic.
8. The Federal District's teaching force is 70 percent female. One-third have fewer than 5 years of teaching experience; almost 40 percent, from 5 to 10 years.
9. Half the teachers like to watch TV and listen to the radio daily.
10. The teacher's recreational activities are sedentary; the vast majority show no interest in sports.
11. Generally, the teacher does not attend concerts, expositions, or lectures.
12. Half the teachers enjoy reading, but almost all resent having to attend meetings.
13. Only about a third travel during vacations.
14. When ill, fewer than half the teachers use the facilities offered by the Institute of Security and Social Services.
15. One-third are pursuing courses outside their profession; the majority of the courses are university-connected.
16. A total of 86 percent are satisfied with working as a teacher.
17. Somewhat fewer than half claim to be abreast of educational advances.
18. A total of 15 percent can read and speak English; 20 percent read and speak French.
19. A total of 43 percent own fewer than a dozen professional education books.
20. Teachers do not use coercive methods to maintain discipline.
21. Teachers average 2 hours daily in class preparation.
22. Teachers are concerned about conditions impeding educational and national progress and strive for fewer pupils in a classroom, more classrooms, and more materials.

The study put its final conclusion in these words:[16]

> The teachers who impart instruction in the official schools of the Federal District love their profession and have the necessary preparation; but they re-

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[15] Secretaría de Educación Pública. Laboratorio de Sociopedagogía, Instituto Nacional de Pedagogía. *Pérfil del Maestro de Educación Primaria en el Distrito Federal,* pp. 5–10.

[16] Ibid., p. 10.

quire more extensive economic and cultural stimuli to fulfill better their noble task.

Apart from the conclusions listed above, the study reached seven others: [17]

1. The school population in the Federal District has increased so much that classes are too large for effective teaching.
2. Parents do not cooperate sufficiently.
3. Qualified teachers are scarce and many teachers lack pedagogical skills.
4. Periodic professional refresher courses are scarce.
5. Teachers prefer old systematic routines to modern plans and programs.
6. Fundamental teaching materials are scarce and sometimes completely lacking.
7. Economic problems force many teachers to work in two school plants or to do other extra work, thus consuming time they need for class preparation and professional activities.

PROBLEMS AND PROSPECTS

Elementary

Official reports have identified many problems at the elementary level, including: (1) An excess of teachers, (2) a need to make a better selection of normal school applicants, and (3) a need to increase inservice education.

It seems paradoxical to speak of an excess of elementary teachers when several million school-age children are still not attending school and when *falta de cupo* (lack of space) is a common complaint widely headlined in newspapers at the beginning of each school year. As the Eleven-Year Plan progresses and more children attend school, the teacher excess may be reduced. Likewise, a reduction in class size, now large, would open up jobs for more teachers. Such measures, however, would require sharply increased budgets.

A better selection of normal school applicants and improved instruction in the normal schools should occur when some of the current experimental practices in the two regional normal schools are applied throughout all normal schools in the country.

Most elementary teachers have now had the minimum amount of training for certification. Nevertheless, inservice education for both teachers and supervisors at the elementary level remains a concern because they need have no more than a secondary education—hardly enough to meet the demands of teaching.

Secondary

Official reports have also identified many needs of teacher education at the secondary level, such as the following: [18]

1. **To extend and decentralize higher normal school facilities.**

   (Like other facilities for higher education, those for preparing secondary teachers are concentrated largely in the Federal District. The total number of graduates from these facilities does not begin to fill the needs of the secondary schools, where most teachers serve with little or no pedagogical training.)

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[17] Ibid., p. 45.

[18] Secretaría de Educación Pública. *Informe,* pp. 206, 314–315.

2. **To prepare teachers in fields rather than in single subjects.**

   (Normal schools have recently adopted this practice. If teachers can now be prepared in fields and if they work 12 rather than 6 hours a week—the customary practice until 1961—they will benefit economically.)

3. **To provide more and better instructional materials.**

   (Lack of appropriate instructional materials, particularly in the basic sciences, handicaps Mexican teacher education. Many potentially useful textbooks by foreign authors either have not been translated or—if translated—have not been adapted to the conditions and needs of the country.)

4. **To upgrade the training of administrators and supervisors.**

   (For upgrading administrators and supervisors the greatest need is for specialists qualified to direct courses and seminars.)

Mexico has a long way to go to professionalize its secondary school administrators, supervisors, and teachers—an acute necessity as the rising number of elementary school graduates increases the demand for secondary education.

XI.

The Promotion of Culture and Education

No discussion of Mexico's educational system would be complete without some mention of the Federal agencies that reflect the country's traditional interest in anthropology, dance, drama, history, literature, music, painting, plastic arts, and sculpture. Many non-Federal agencies, particularly the universities, also sponsor programs of a cultural or educational nature, but this discussion will cover only those of the Federal Government.

SUBSECRETARIAT OF CULTURAL AFFAIRS

Established within the Secretariat of Public Education, the Subsecretariat of Cultural Affairs (*Subsecretaría de Asuntos Culturales*) is responsible for the cultural agencies described below.

Department of Libraries

When established in 1921, the Secretariat of Public Education included the Department of Libraries (*Departmento de Bibliotecas*). José Vasconcelos, the first Secretary of Education, recognized that libraries were a part of an overall educational and cultural program. Other educational leaders since Vasconcelos have supported his view. Because large libraries are costly, the department has provided modest reading rooms primarily for students and workers.

Library facilities are concentrated in the Federal District, where the Department of Libraries in 1964 had under its control 72 public, elementary-school, secondary-school, technical-school, and specialized libraries.[1] The department has, however, sponsored libraries in small communities by establishing a foundation of community leaders to assure support until a position could be created for a librarian. By 1964 the department had used this method in 1,400 communities.[2]

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[1] Secretaría de Educación Pública. *Obra Educativa en el Sexenio 1958–1964*, pp. 417–422. For publication details on this and subsequent citations, see Selected Bibliography.

In 1964 the department controlled 51 libraries in the Mexican States and two in the United States (Los Angeles and San Antonio).[3] These latter two offer to acquaint people with Mexican life not only through books but also through lecture, radio, and television programs.

Municipalities, States, and universities also operate libraries. The present total facilities, however, do not nearly satisfy the needs of either the student or the nonstudent population. Much remains to be done to realize Vasconcelos' vision of massive dissemination of reading materials to both young and old.

General Directorate of Audiovisual Education

The objectives of the *Dirección General de Educación Audiovisual* are to—

1. Disseminate information concerning the principles and methods of audiovisual instruction.
2. Promote and organize radio and television instruction to achieve cultural improvement of the people.
3. Study, plan, and produce audiovisual aids for various kinds and levels of education.

To achieve these objectives, the Directorate has installations in the Federal District and each of the States and Territories. It prepares teaching materials and instructs teachers in their use through courses called *Orientación Audiovisual.* From 1958 to 1967, a total of 6,205 teachers attended 67 of these courses.[4]

Cooperating with the Federal Institute of Teacher Training, the General Directorate has recently prepared recordings of secondary school courses for radio. Intended primarily to benefit rural teachers, they have reached a larger audience, as shown by the estimated number of 300,000 persons listening to the broadcast in 1964.[5]

The Directorate uses television to improve instructional methods, to provide illustrative materials, and to show elementary teachers how to use the free elementary textbooks and workbooks effectively.

Prepared for all school levels, television programs under the Directorate are produced on closed circuit, videotaped, and made available to all the country's stations.

National Institute of Fine Arts

Popular interest in architecture, dance, drama, literature in all forms, music, and plastic arts is stimulated by the *Instituto Nacional de Bellas Artes.* It offers professional education through its Academy of the Dance, National Conservatory of Music, National School of Dance, Schools of Painting and Sculpture, and Schools of Theatrical Arts and the Opera. It conducts research in the traditional forms of Mexican popular art and acts as custodian of the national artistic patrimony.

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[2] Ibid., p. 409.
[3] Ibid., pp. 423–430.
[4] Ibid., p. 310.
[5] Ibid., p. 314.

The institute sponsors literature contests, compiles and publishes information about the productions of Mexican authors, and organizes lectures on Mexican literary themes.

Numerous organizations within the National Institute carry on dance and musical activities. *The Ballet Folklórico de Bellas Artes* has performed before enthusiastic audiences in the major cities of Europe, Latin America, and the United States; it is one of the items most highly recommended by tourists guidebooks as representative of Mexico's greatest artistic achievements.

The institute sponsors exhibits, lectures, and publications about architecture. It has promoted the establishment of regional centers of fine arts as well as *museos fronterizos* (border museums) to display artistic creations that might inspire the border visitor to tour the rest of Mexico sometime.

Much of the institute's program benefits the schools directly or indirectly. From 1959 to 1964, a total of 32,288 students enrolled in its schools and thousands more attended its concerts and viewed its exhibits.

National School of Anthropology and History

In 1937 the *Escuela Nacional de Antropología e Historia* was created to:

1. Explore, conserve, restore, and study archeological, artistic, and historic monuments.
2. Make scientific investigations of Mexican archeology and history and anthropological and ethnographic studies of the indigenous population.
3. Publish the results of its work.

Much of the institute's work concerns the pre-Hispanic period. Up to 1964, a total of 12,000 archeological sites had been registered.[6] To the schools the institute renders a valuable service in the form of guided visits to its archeological zones, colonial monuments, and museums. From 1959 to 1964 more than 795,000 students and teachers took part in these guided visits.[7]

OTHER CULTURAL AGENCIES UNDER THE SECRETARIAT OF PUBLIC EDUCATION

The National College

Created in 1943 as a "community of culture" in the service of society, *El Colegio Nacional* is composed of leading representatives of various kinds of scholarly endeavor, each with the obligation to present public lectures on his speciality. Lecturers (called "members" of the college) have complete freedom to present their views. In return, they consider their membership a high honor and an opportunity to have a forum from which they may communicate their ideas to the public.

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[6] Ibid., p. 340.

[7] Ibid., pp. 352–353.

The college charges no tuition, gives no examinations, and awards no titles. In 1964 it had 20 lecturers and its budget was 1 million pesos.[8] From 1959 to 1964, a total of 50,334 persons attended 740 lectures sponsored by *El Colegio Nacional.*[9]

National Youth Institute

The activities of the *Instituto Nacional de Juventud* are focused on Mexican youth. Its Department of Civic Training offers lectures on Mexican history and arranges commemorative ceremonies for important civic events. Its Youth Brigades organize community-action programs such as literacy training, medical services, reforestation, road construction, and school construction.

Through the National Youth Institute's Department of Cultural Training, young people receive instruction in ballet, dance folklore, drawing, English, history of art, history of the theater, music, and other subjects. Its Department of Work Training promotes competition in sports from the local to the international level. The institute has also established youth centers in workers' colonies and suburban localities to promote civic, cultural, and occupational objectives.

GOVERNMENT AGENCIES OUTSIDE THE SECRETARIAT OF PUBLIC EDUCATION

Although the major part of Federal educational activities in Mexico comes under the aegis of the Secretariat of Public Education, other centralized and decentralized Government agencies have specialized educational and cultural functions. The educational work of nine such agencies is described below.[10]

Mexican Institute of Social Security

Centers for social security and family welfare, children's clubs, and clubs for youths and adults are operated by the Mexican Institute of Social Security (*Instituto de Seguridad Social*). In March 1963, the institute's Interamerican Center for Social Security Studies (*Centro Interamericano de Estudios de Seguridad Social*), offering specialized courses, was opened; that year it enrolled 30 students, including some from Latin American countries other than Mexico.

Secretariat of Agriculture and Stock Raising

The most important center of higher agricultural education in Mexico, the National School of Agriculture (*Escuela Nacional de Agricultura*), located in Chapingo (State of Mexico), is operated by the *Secretaría de Agricultura y Ganadería.* This school provides training in many agricultural specialities, and its postgraduate curriculum offers courses leading to the doctorate.

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[8] Ibid., p. 448.

[9] Ibid.

[10] The principal source of information for the educational work described is *Informe,* pp. 362–400. Secretaría de Educación Pública.

The Secretariat subsidizes other higher schools of agriculture as dependencies of universities of regional technological institutes. The principal examples of these schools are the ones located in Culiacán (State of Sinaloa), Hermosillo (State of Sonora), Juárez (State of Chihuahua), Monterrey (State of Nuevo León), and Saltillo (State of Coahuila).

Further, the Secretariat supports two middle-level agricultural schools—the Practical School of Agriculture (*Escuela de Agricultura Práctica*) in Antúñez (State of Michoacán) and the School for Forest Rangers (*Escuela de Guardabosques*) in Uruapán (State of Michoacán). It maintains numerous research institutes and an extension service.

The Secretariat's budget for all its educational services increased from about 19 million pesos in 1958 to over 72 million in 1963, thus indicating the Federal Government's high priority for agriculture.

Secretariat of Communications and Transportation

Eleven educational establishments offering specialized training in their respective fields are maintained by the *Secretaría de Comunicaciones y Transporte:*

1. **Centro de Capacitación Administrativo.**
   (This Center for Administrative Training prepares employees for administrative positions in the Secretariat.)
2. **Centro Internacional de Adiestramiento de Aviación Civil.**
   (Established in 1952, the International Center for Civil Aviation Training gives training to ground and flying personnel through courses conducted in Spanish. Open to both Mexican students and those from other Latin American countries, the center is an important factor in training the skilled technicians necessary for development of air transport in Latin America.)
3. **Círculo Social "Belén de las Flores."**
   (Bethelem of the Flowers Social Circle is operated for employees of the Secretariat of Communications and Transportation.)
4. **Escuela de Capacitación Postal.**
   (The School of Postal Training aims to increase the work efficiency of postal employees. Within the limitations of space, employees' families may also attend classes.)
5. **Escuela de Enfermería y Obstetricia.**
   (Created in 1960, the School of Nursing and Obstetrics prepares nurses and obstetricians for the medical centers operated under the Secretariat.)
6. **Escuela de la Policía Federal de Caminos.**
   (In 1953 the School for Federal Highway Police was opened to train policemen for Federal highway patrol through 6 months' study followed by practical experience.)

7–11. **Five other schools.**
(The five schools consist of one for technicians and microwave operators, one for telcommunication workers, and three for railroad workers.)

Secretariat of Government

A cabinet office, the *Secretaría de Gobernación* conducts the campaign against delinquency, supervising correctional schools, juvenile courts, reformatories, and similar institutions. Its programs are intended to rehabilitate minors by training them for work and improving their adjustment to family and social life.

Secretariat of Health and Welfare

Courses are provided by the Secretariat of Health and Welfare (*Secretaría de Salubridad y Asistencia*) for the three groups identified below:

1. Postgraduates studying at the *Escuela de Salubridad y Asistencia*—School of Health and Welfare—or studying medical specialities at the principal decentralized institutions.
   (In this endeavor, the National University of Mexico cooperates with the school and the decentralized institutions.)
2. Sanitary auxiliary employees of different institutions of the Secretariat and in different areas of the country; official employees and voluntary groups planning to work in rural areas; women training as nurses.
3. Technicians in public health at the School of Health and Welfare.

Secretariat of Industry and Commerce

Four *Escuelas Prácticas de Pesca* (Practical Fishing Schools) are maintained by the *Secretaría de Industria y Comercio* in Campeche (State of Campeche), La Paz (State of Baja California, Sur), Manzanillo (State of Colima), and Veracruz (State of Veracruz), respectively. The 2-year programs include both academic and practical work. In 1963 the Practical Fishing Schools enrolled 200 students, and the schools' budgets almost doubled between 1958 and 1963.[10]

Secretariat of Labor and Social Planning

The following three schools are operated by the *Secretaría de Trabajo y Previsión Social*:

1. **Escuela de Capacitación de Enseñanza Elemental para Obreros.**
   (The Training School in Elementary Instruction for Workers prepares workers for union participation and for a better role in civic affairs; it offers them an opportunity to finish elementary school.)
2. **Escuela Nacional para Auxiliares de Guarderías Infantiles.**
   (The National School for Assistants in Day Nurseries prepares technical employees for day nurseries and offers courses in childhood education, dietetics, first aid, and social psychology.)
3. **Instituto Técnico Administrativo del Trabajo.**
   (The Technical Administrative Institute of Labor instructs workers in the problems of applying social legislation in Mexico, Central America, and the Caribbean.)

Secretariat of National Defense

The military education provided by the *Secretaría de la Defensa Nacional* is of two types: Premilitary, offered at civilian schools; and professional military, at military installations. Literacy training and elementary education in both the premilitary and the professional military follow study plans of the Secretariat of Public Education.

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[10] Ibid., p. 677.

Secretariat of the Navy

Numerous schools and training centers are maintained by the *Secretaría de la Marina,* principally in the port cities of Mazatlán (State of Sinaloa), Tampico (State of Tamaulipas), and Veracruz (State of Veracruz), to prepare sailors in the special skills required for naval service.

XII.

International Cooperation With Mexican Education

Mexico has been receiving various forms of international aid to improve and expand its educational system: (1) Technical assistance from other nations and international organizations, (2) scholarships for advanced study outside the country, and (3) loans to build and equip schools. Mexico has reciprocated by placing at the service of other countries its own experience in education and by providing headquarters for several organizations that serve all Latin America.

The international aid made available to Mexico will be discussed briefly in this chapter under two types of programs through which the aid is channeled.

BILATERAL PROGRAMS

Several programs of scholarships, technical assistance, and exchange of persons operate by agreement between the Government of Mexico and that of individual countries, principally France and the United States. The program with the United States is by far the most extensive. In 1963, for example, a total of 22 agencies of the U.S. Government had some activity or contact relating to Mexican higher education.[1] Only a sampling of the participation of various U.S. agencies can be given here.

In 1962, educational exchange between the United States and Mexico began to expand rapidly, owing to sizable Public Law 480 funds. A program of the U.S. Department of State, this educational exchange has emphasized the strengthening of selected academic disciplines in various Mexican institutions of higher education. In fiscal year 1964, a total of 398 Mexicans participated in exchanges or received grants of some type. In fiscal year 1965, the exchange emphasized the humanities and social sciences. One institution, the *Universidad Autónoma de Guadalajara* (State of Jalisco), received about one-third of the total 1965 funds made available to Mexico under Public Law 480.

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[1] The source of data on U.S. participation is *United States Assistance to Mexican Higher Education*, March 1964, Mimeograph. Mexico: U.S. Embassy.

The U.S. Information Service (USIS) operates the U.S. State Department's cultural and educational program in Mexico—a program focused almost entirely on higher education. The USIS program there maintains libraries, distributes books, and sponsors binational centers and cultural presentations.

The U.S. Agency for International Development (AID) has made substantial grants to the National School of Agriculture at Chapingo (State of Mexico), the Latin American Center for Monetary Studies in Mexico City, and the Technological Institute of Monterrey (State of Nuevo León). The Regional Training Aids Center, another AID program with headquarters in Mexico City, distributes technical books and films.

The National Institutes of Health of the U.S. Department of Health, Education, and Welfare carry on an extensive program of research and training grants.

The Office of Education, in the same department, administers Department of State programs for teacher development and teacher exchange.

MULTILATERAL PROGRAMS

Two international organizations with which Mexico collaborates in the educational field are the United Nations (U.N.) and the Organization of American States (OAS).

Recent grants to Mexican education from various U.N. organizations have been directed mainly toward improving agricultural and scientific-technical-vocational training as well as training for technical education teachers. One of the largest grants helps support CREFAL (Regional Center of Fundamental Education for Community Development in Latin America), headquartered in Pátzcuaro (State of Michoacán) and sponsored jointly with the Organization of American States. From 1959 to 1964, the funds which the Secretariat of Public Education received from U.N. agencies for educational activities in Mexico totaled more than 51 million pesos.[*]

From the OAS, Mexican students have received numerous scholarships. Two OAS organizations in which Mexico has taken the leadership are headquartered in Mexico City: the *Centro Regional de Construcciones Escolares para la América Latina* (Regional Center for School Construction in Latin America) and the *Consejo Interamericano Cultural* (Inter-American Cultural Board).

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[*] Secretaría de Educación Pública, *Obra Educativa en el Sexenio 1958–1964*, p. [illegible].

Private Foundations

Three U.S. foundations (Ford, Kellogg, and Rockefeller) provided grants for Mexican projects in 1963 totaling $3,835,000. Well over half the total of those grants came from The Ford Foundation, and more than half the total of their grants from 1960 to 1964 went to agriculture.[3] The chief beneficiaries of the foundations' grant during those years were the National School of Agriculture at Chapingo (State of Mexico), the *Colegio de México,* and the National University (both in Mexico City).

Education and World Affairs, an organization established in 1962 and supported by The Ford Foundation and The Carnegie Foundation for the Advancement of Teaching, has conducted a study project on United States-Mexican educational relationships.

Other Sponsors

More than 150 U.S. universities and colleges have some cooperative activity with Mexican higher education.[4] This may take the form of continuing university-to-university relations, summer school programs, or an exchange of selected students and professors.

The large community in Mexico representing various business and industrial firms of the United States provides numerous scholarships for Mexican students to study at United States or Mexican institutions. A total of 1,321 Mexican students were enrolled during 1963–64. More than half these students were self-supporting[5] and the others received support from the United States or Mexican Government, U.S. colleges and universities, or private sources.

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[3] Ibid.
[4] Ibid.
[5] Ibid.

XIII.

Conclusions

RECENT ACHIEVEMENTS

Official Government reports document Mexico's recent educational achievements. Over one-fourth of the 1966 Federal budget was allocated to education. State and private support of education, although increasing, still lags behind that of the Federal Government. Designed to satisfy the country's basic needs for elementary schools by 1970, the Eleven-Year Plan is proceeding well ahead of schedule. Kindergartens and elementary, secondary, and normal schools are using new curriculums. Two new regional normal schools and training centers for short agricultural and industrial courses have been established. To expand facilities for technical and higher education outside the Federal District, the Federal Government has created a network of regional technological institutes and substantially increased its subsidies to State universities. School construction has proceeded at a record pace. International collaboration in education has expanded, and teachers' salaries and benefits have improved markedly.

Many of Mexico's educational features have attracted wide acclaim beyond its borders—cultural missions, free textbooks, fundamental education, inservice training for elementary teachers, and school construction.

FURTHER NEEDS

Mexican leaders are the first to admit that even the latest achievements, however notable, are insufficient quantitatively and qualitatively to satisfy the needs of a rapidly increasing population. Former President López (1958–64) declared that "water and schools" was the cry he heard most often in his travels throughout the country.[1] Francisco Larroyo, one of Mexico's leading educational authorities, deplores the fact that in a democratic country 5 million school-age children receive no formal education and warns that the lack of schools and teachers creates an "explosive" problem.[2] The National Technical Council of Education, charged with the responsibility of studying the educational system from top to bottom, has rendered a useful service in identifying needs and proposing ways to fulfill them.

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[1] Secretaría de Educación Pública, *Obra Educativa en el Sexenio 1958–1964*. Foreword. For publication details on this and subsequent citations, see Selected Bibliography.

Eleven areas of need identified by the council as most urgently requiring action are the following, together with its suggestions for action:

1. **Agricultural Education.**
   (Direct more educational efforts toward the agricultural sector—the least advanced sector of the whole economy.)
2. **Coordination.**
   (Promote greater coordination among higher education institutions and between higher and secondary levels.)
3. **Elementary Education.**
   (Provide elementary education for all school-age children as envisioned by the Eleven-Year Plan and as required by the Constitution.)
4. **Equalization of Educational Opportunities.**
   (Promote greater equalization of educational opportunities throughout the country, narrowing the gap between the large urban centers and the remote areas.)
5. **Equitable Contributions.**
   (Find a formula that will assure more equitable contributions to education by the Federal Government, State governments, and municipaliti
6. **Higher Education.**
   (Expand higher education facilities, particularly outside the Federal District, thereby relieving enrollment pressure on the National University and building a pool of professional manpower for regional development.)
7. **Private Support.**
   (Encourage more private support for and participation in the educational enterprise.)
8. **Secondary Education.**
   (Provide sufficient secondary school facilities to enroll the growing number of elementary school graduates.)
9. **Teacher Education.**
   (Increase and upgrade teacher education for secondary and technical schools.)
10. **Technical and University Education.**
    (Expand technical and university education according to a plan based on thorough research of specific national and regional manpower needs.)
11. **Technical Education.**
    (Increase facilities for the technical education necessary to produce skilled manpower for an expanding economy.)

Mexican leaders themselves have cited all these areas of need and many more; the problem of determining priorities among them is urgent. Mexico remains a developing country with limited resources and thus education must compete with agriculture, health, housing, industry, power, transportation, water resources, and other areas of development for its share of the gross national product.

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[2] *Excelsior*, Feb. 5, 1966. The 5-million figure is somewhat greater than that given in Government reports.

EDUCATION'S KEY ROLE

Mexico looks forward to the day when its efforts can be directed to maintaining and refining an educational system rather than building a larger one in an attempt to keep pace with burgeoning enrollments. That day is a long way off, but the remarkable progress of the last half-century inspires confidence that the goal may eventually be reached. As Sánchez has said [3]—

> The centuries of unceasing friction have instilled in the Mexican strong emotions; he has a consuming urge, a fervent drive, and a determination to find a way out of [Mexico's] problems.

Popular demand for education is strong and unrelenting. Education plays a key role in the peaceful Revolution to which the nation is dedicated.

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[3] George I. Sánchez. *Mexico*, p. 4.

Appendixes

Appendix A

Eighty public and private higher education institutions, by State; and State totals for students in those institutions: 1964

State and institution	Number of institutions (State total)		Number of students (State total)
	Public	Private	
Total	49	31	116,62^{8}
BAJA CALIFORNIA (NORTE)	1	1	369
Centro de Estudios Técnicos y Superiores		x	
Universidad Autónoma de Baja California	x		
CAMPECHE	1		69
Universidad de Campeche [1]	x		
COAHUILA	2	2	1,569
Escuela de Ingeniería Mecánica de Monclova		x	
Escuela de Odontología		x	
Instituto Tecnológico Regional de Coahuila	x		
Universidad de Coahuila	x		
COLIMA	1		132
Universidad de Colima	x		
CHIAPAS	1		126
Escuela Preparatoria de Derecho	x		
CHIHUAHUA	2	1	810
Escuela de Filosofía y Letras		x	
Instituto Tecnológico Regional de Chihuahua	x		
Universidad de Chihuahua	x		
DISTRITO FEDERAL	10	15	70,772
Centro Nacional de Enseñanza Técnica Industrial	x		
El Colegio de México		x	
Escuela de Arte Teatral	x		
Escuela Bancaria Comercial		x	
Escuela de Contaduría Pública y Administración de la Institución "Harvard"		x	
Escuela de Ingeniería Municipal		x	
Escuela Libre de Derecho		x	
Escuela Libre de Homeopatía		x	

See footnotes at end of table.

Eighty public and private higher education institutions, by State; and State totals for students in those institutions: 1964—Continued

State and institution	Number of institutions (State total)		Number of students (State total)
	Public	Private	
DISTRITO FEDERAL—Continued			
Escuela Médico-Militar	x		
Escuela Militar de Ingenieros	x		
Escuela Nacional de Antropología de Historía	x		
Escuela Nacional de Biblioteconomía y Archivonomía	x		
Escuela Normal de Especialización	x		
Escuela Normal Superior	x		
Escuela Normal Superior "F.E.P."		x	
Instituto de Ciencias Sociales, Económicas y Administrativas		x	
Instituto Politécnico Nacional	x		
Instituto Superior de Estudios Comerciales		x	
Instituto Tecnológico Autónomo de México		x	
Universidad Feminina de México		x	
Universidad Iberoamericana		x	
Universidad La Salle		x	
Universidad Militar Latinoamericana		x	
Universidad Motolinía		x	
Universidad Nacional Autónoma de México	x		
DURANGO	2		572
Instituto Tecnológico Regional de Durango	x		
Universidad "Juárez" del Estado de Durango	x		
GUANAJUATO	2	1	1,749
Escuela Comercial Bancaria de León		x	
Instituto Tecnológico Regional de Celaya	x		
Universidad de Guanajuato	x		
GUERRERO	1		196
Universidad Autónoma de Guerrero	x		
HIDALGO	1		750
Universidad Autónoma de Hidalgo	x		
JALISCO	1	3	7,924
Escuela Normal Superior "Nueva Galicia"		x	
Instituto Tecnológico y de Estudios Superiores de Occidente		x	
Universidad Autónoma de Guadalajara		x	
Universidad de Guadalajara	x		
MEXICO	2		1,868
Escuela Nacional de Agricultura	x		
Universidad Autónoma del Estado de México	x		
MICHOACAN	1		2,020
Universidad Michoacana de San Nicolás de Hidalgo	x		
MORELOS	1		497
Universidad de Morelos	x		
NAYARIT	2		768
Escuela Normal Superior de Nayarit	x		
Instituto de Ciencias y Letras de Nayarit	x		

See footnotes at end of table.

Eighty public and private higher education institutions, by State; and State totals for students in those institutions, 1964—Continued

State and institution	Number of institutions (State total)		Number of students (State total)
	Public	Private	
NUEVO LEON	1	4	9, 804
Colegio Franco-Mexicano		x	
Escuela Normal Superior "Labastida"		x	
Instituto Tecnológico y de Estudios Superiores de Monterrey		x	
Universidad "Labastida"		x	
Universidad de Nuevo León	x	....	
OAXACA	1	....	392
Universidad "Benito Juárez" de Oaxaca	x	....	
PUEBLA	2	2	4,852
Escuela Normal Superior "Benavente"		x	
Escuela Normal Superior de Puebla	x	....	
Universidad Autónoma de Puebla	x	....	
Universidad Feminina de Puebla		x	
QUERETARO		1	474
Universidad Autónoma de Querétaro		x	
SAN LUIS POTOSI	1	....	1,908
Universidad Autónoma de San Luis Potosí	x	....	
SINALOA	1	1	835
Instituto Cultural de Occidente		x	
Universidad Autónoma de Sinaloa	x	....	
SONORA	2	....	969
Instituto Tecnológico de Sonora	x	....	
Universidad de Sonora	x	....	
TABASCO	1	....	384
Universidad Autónoma "Juárez" de Tabasco	x	....	
TAMAULIPAS	2	1	1,197
Escuela de Comercio y Administración de Tampico		x	
Instituto Technológico Regional de Ciudad Madero	x	....	
Universidad de Tamaulipas	x	....	
TLAXCALA	1	....	8
Instituto de Estudios Superiores del Estado de Tlaxcala	x	....	
VERACRUZ	3	....	3,904
Instituto Tecnológico Regional de Orizaba	x	....	
Instituto Tecnológico Regional de Veracruz	x	....	
Universidad Veracruzana	x	....	
YUCATAN	2	....	944
Instituto Tecnológico Regional de Mérida	x	....	
Universidad de Yucatán	x	....	
ZACATECAS	1	....	766
Universidad de Ciencias Autónoma de Zacatecas	x	....	

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[1] Now called Universidad del Sudeste.

SOURCE OF DATA: Asociación Nacional de Universidades e Institutos de Enseñanza Superior. *La Educación Superior en México en el Régimen del Presidente López Mateos*. app. B, table 1. Mexico, D.F., The Association, November 1964.

Appendix B

Degrees and titles awarded by the *facultades* and schools of the National Autonomous University of Mexico and number of required years of study for each: 1964

[*indicates a title]

Facultad or National school	Degree or title	Required years of study
Facultad		
Engineering (*Facultad de Ingeniería*).	Engineer.*	5.
	Master's engineering.	(1).
	Doctor's in engineering.	(1).
Law (*Facultad de Derecho*).	Social worker.	3.
	Licentiate in law.	5.[2]
	Doctorate in law.	2 (after years for licentiate).
Medicine (*Facultad de Medicina*).	Physician and surgeon.*	5[2] (includes hospital internship and 6 months' social service).
	Master of medical science.	2[2] (after years for physician and surgeon).
	Doctor of medical science.	2 (after years for master of medical science).
Philosophy and letters (*Facultad de Filosofía y Letras*).	Licentiate in philosophy, languages, and literature.	(3).
	Master's in philosophy, languages, or literature.	(1).
	Doctor's in philosophy, languages, or literature.	(1).
Sciences (*Facultad de Ciencias*).	Licentiate (in 1 of 6 specialties).	4.[2]
	Master's (in 1 of 6 specialties).	2 (after years for licentiate).
	Doctor's (in 1 of 6 specialties).	2 (after years for master's).

Degrees and titles awarded by the *facultades* and schools of the National Autonomous University of Mexcio and number of required years of study for each: 1964—Continued

Facultad or National school	Degree or title	Required years of study
National School		
National School of Architecture (*Escuela Nacional de Arquitectura*).	Architect.*	5.[2]
National School of Chemical Sciences (*Escuela Nacional de Ciencias Químicas*).	Chemical engineer,* chemists,* or pharmaceutical-biological chemist.*	5.
National School of Commerce and Business Administration (*Escuela Nacional de Comercio y Administración*).	Licentiate in business administration or of public accounting.	5.[2]
National School of Dentistry (*Escuela Nacional de Odontología*).	Licentiate in dentistry.	5.[2]
National School of Economics (*Escuela Nacional de Economía*).	Licentiate in economics.	5.[2]
National School of Music (*Escuela Nacional de Música*).	Composer* or organist.*	9.[2]
	Melodious and choral sing. ing,* or folklorist.*	7.[2]
	Pianist,* instrumentalist*, or vocalist.*	8.[2]
National School of Nursing and Obstetrics (*Escuela de Enfermería y Obstetricia*).	Nurse.*	3.
	Midwife.*	2 (after years for nurse*).
National School of Plastic Arts (*Escuela Nacional de Artes Plásticas*).	None (evening courses in applied arts).	4.
	Professor of plastic arts.*	5.
National School of Political and Social Sciences (*Escuela Nacional de Ciencias Políticas y Sociales*).	Licentiate in 1 of 5 fields.	5.[2]
National School of Veterinary Medicine and Zootéchnics (*Escuela Nacional de Medicina Veterinaria y Zootecnia*).	Doctor of veterinary medicine and zootechnics.*	5.[2]

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[1] Number of years of postgraduate work varies from 2 on.
[2] Thesis required.
[3] Number of years varies because the licentiate degree is awarded for semester credit-hours rather than for number of years of study.

SOURCE OF DATA: Universidad Nacional Autónoma de México. *U.N.A.M. Information for Students Abroad.* México, D. F. April 1965, pp. 4–9.

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